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An Address

Delivered to the Graduates on July 26th, 1902, at the University of Edinburgh on the occasion of the Admission to Degrees in Medicine, and of the Conferring of the Honorary Degree of LL.D. upon the Representatives of the Colonies,

By E. A. SCHAFER, LL.D., F.R.S.[1]

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY.

LADIES and Gentlemen, Newly-made Graduates,—This is a momentous day in the life of everyone of you. You have come to the parting of the ways. You are going out into the world, many of you far afield. You possess youth, with its self-confidence, and you will doubtless be saying with Pistol: "The world's mine oyster!" But the world, let me remind you, is an oyster which shuts itself up very tight, and it is not everyone who succeeds in opening it. You must be prepared for disappointments, but resolved never to be disheartened by them. How few meet with uninterrupted success, and such as do—are they always the better for it?

> "Sweet are the uses of adversity,
> Which, like the toad, ugly and venomous,
> Wears yet a precious jewel in his head."

You are leaving your studies behind, but, in one sense, the most important are yet in front of you. It is, I think, Lowell who has somewhere said that the most valuable part of our learning is that which we teach ourselves. And this is pre-eminently the case with medical learning. You will find that it is experience, and the knowlege which can only be gained by experience, which will enable you to approach the sick-bed with confidence. And while you employ your store of accumulated experience to assist you in the diagnosis and treatment of every new case which comes before you, you will, by rightly using your trained powers of observation, be able to cull from each case something worth adding to that store.

This being in the main a medical graduation it is appropriate for me to address more especially those of you who have decided to pursue a medical career and as I myself happen to be outside the actual profession—although my subject, the Institutes of Medicine, belongs in a very real sense to it—I am able to view medical practice from a relatively impartial standpoint, and may therefore venture in the first place to offer some reflections upon the advantages which the profession of medicine offers to those who, like yourselves, take it up as the occupation of their lives. These advantages are, I believe, considerable, and to use a phrase which has lately become current, are not only material, but also moral and intellectual. The most obvious benefit of a material character is connected with the fact that the practice of medicine is to be for most, if not for all of you, your source of livelihood. The education which you have received in preparation for practice has been a long and expensive one, but it has a good, and probably an increasing, market value. What its relative value as compared with that for one of the other learned professions may be it is not easy accurately to estimate, but one thing is certain—that it is in the power of any one of you to secure at once an income which, if not large, is at least sufficient for any immediate wants you are likely to have. Thanks to the abolition of the unqualified assistant good positions as assistant are at a premium, and as an introduction to family practice there is no better opening than the opportunities which such a position frequently affords. As an alternative you have the choice of many residential positions in provincial and other hospitals most of which offer unrivalled facilities for the acquirement of experience. But unless under the pressure of necessity I would not advise either of these as the best method of spending the first year or so after graduation. I would most strongly urge those who are in the position to afford the time and money to continue their clinical and pathological studies in other places or even in other countries. Nothing is better calculated to enlarge your mental vision than making the acquaintance of men and methods other than those to which you have been accustomed; nothing will develop your critical powers to the same extent. And your facility in diagnosis, which must always be the first qualification of the physician, will largely depend upon the development of those powers. But the material benefit which is represented by a fair and, let us hope, a steadily increasing income, is by no means the only advantage to be gained by your having joined the ranks of the medical profession; there are moral and intellectual benefits, which if less tangible, are no less valuable. For it seems certain that the calling or profession to which one belongs may react upon the individual pursuing it, and may be capable of modifying his character for better or worse. It would not be difficult to illustrate this by examples drawn from any of the learned professions, but my present purpose will be served if I can point out the effect which the practice of medicine tends to produce not only on the character of the individual practitioner but also on the profession as a whole; leaving the more general investigation to future philosophers, who will without doubt find it a very fertile subject of study.

It will, I think, be denied by no one that the tendency of the doctor's occupation is to cultivate a sympathetic attitude towards his fellow man. No matter what the sphere of his labours—whether he be the court physician making a princely income and accustomed to move in the highest circles of society, or the poorest general practitioner, earning with unremitting labour little more than a living wage—we find the same qualities tending to accentuate themselves—the same disregard of self, the same devotion to the interests of his patients. This is the character which has been so sympathetically depicted by a master hand in the old doctor of Drumtochty, and I venture to assert that the type is to be met with, under different guises, in every town and village throughout the length and breadth of the land. In what other profession do we find so much gratuitous benevolence? Look at the amount of invaluable time which is placed at the service of the suffering poor in our hospitals and dispensaries, the numberless visits which are paid to private patients whose circumstances are such that the doctor either refuses to accept a fee at all, or makes a demand of a merely nominal nature; nay more, in many instances is ready to put his hand into his own pocket to relieve the necessities which the accident of his occupation has revealed to him. How many the instances of doing good by stealth unnoted by any pen of man, but let us trust not forgotten by the Recording Angel.

See, further, how this spirit of altruism, which has existed amongst physicians from time immemorial, has spread from the individual to the mass and has infected the profession as a whole. In what other branches of applied science are inventions and discoveries made over as free gifts to mankind? Consider from the commercial point of view alone the enormous value of vaccination, of antisepsis in surgery. We are in the habit, and rightly, of recompensing the successful leaders of our armies not only with titles, but with still more tangible marks of our gratitude and appreciation. But

> "A wise physician, skilled our wounds to heal,
> Is more than armies to the publick weal."

Jenner, it is true, obtained a grant from Parliament of £10,000, which was eventually increased to £30,000, as an acknowledgement of his services in introducing a practice which has been the means of saving thousands of lives annually and which has rendered innocuous the greatest scourge by which mankind has ever been visited; but this is almost a unique instance of a pecuniary reward being conferred upon a medical man for public services. Had Jenner, had Lister, instead of giving freely to the world the methods which are associated with their names, patented those methods, they might have heaped up riches beyond the dreams of avarice. But we take such gifts as a matter of course, and if we ask why this is so, while workers in other branches of applied science are permitted to reap the fruit of their investigations, the answer is that it is the established tradition of the medical profession to have no secret remedies and to establish no monopolies but to consider only how mankind may best be benefited. Ladies and gentlemen, it is the existence of such traditions as this which exhibits the true nobility of the profession you have chosen.

You whom I am addressing are fortunate in the time at

[1] The publication of this address has been unavoidably delayed owing to the pressure on our space caused by the report of the proceedings of the British Medical Association and by the publication of the Students' Number.

which you are commencing practice, in the time during which you have received your training, for it is not likely that there will occur during your lifetime such a complete change in the manner of viewing nearly all problems in both medicine and surgery as we of the latter half of the nineteenth century have witnessed; nor will you be compelled to remodel all your ideas upon pathology and treatment as your predecessors of my own generation have found themselves under the necessity of doing. This change has been the result of the recognition of a single principle, and the consequences of its recognition have been so momentous that I have no hesitation in affirming that the relation which it occupies to the science of medicine is of not less importance than that which the principle established by Darwin bears to biology. This principle, or doctrine, if that term be preferred, which has so completely revolutionised the practice of both medicine and surgery, is, as you are aware, the doctrine of the parasitic nature of disease. Unlike the Darwinian hypothesis this one has not been sprung suddenly upon the world, but has been the slow growth of years: it has, however, no less surely taken its place in medical science as an established hypothesis—nay, more than a mere hypothesis, as a well-founded fact. Unlike the Darwinian theory, its establishment cannot be allocated to an individual, but is the result of the independent investigations of many workers during the latter half of the last century. The great French chemist, Pasteur, was a pioneer in this field of exploration, which has since yielded such remarkable results, but even before Pasteur the opinion was beginning to spread that many diseases of plants and animals, other than those which were obviously due to moulds and worms, might be caused by parasitic organisms. Look, however, at the position which the doctrine now holds and see how intimately it is interwoven with the whole fabric of medicine and surgery. Listerism is founded upon it, and upon Listerism is dependent the marvellous advance which surgery has made within the memory of many who are here present. Consider what surgery was in the ante-Listerian days. You must all of you have heard; many of us know from personal experience. It was not skill that was lacking but knowledge of the nature of infective processes. There have probably never been surgeons more expert than Liston and Syme, and yet, thanks to this knowledge, which has been acquired since their time, there is not one of you graduating to-day who could not with confidence approach problems in operative surgery which they with all their skill would never have dared to venture upon. And if the change which has taken place in medicine is not so striking as in surgery it is none the less real. The practice of protective inoculation, which was introduced some two centuries ago to mitigate the ravages of small-pox, was a dim foreshadowing of what now forms the basis of the preventive and remedial treatment of a large number of affections. How many diseases, the parasitic nature of which was not so much as suspected some 15 or 20 years back, are now known to belong to that class. Nor is it only a question of treatment but also of diagnosis; the whole range of practice in all its aspects is affected by the establishment of this doctrine.

And yet we are only at the commencement of its application. Every day almost sees some new fact recorded, some new discovery made, as a result of the assumption—for in many cases it must at first be only an assumption—that this or that pathological condition is produced by the growth of a parasitic organism. Nor have we far to go to-day for an illustration of this statement seeing that we have just presented the Cameron Prize to Major Ronald Ross in recognition of his brilliant researches into the life-history of the parasite which produces malaria.

By the same methods as the problems of health and disease have been attacked in the past must they also be pursued in the future. What are those methods? The answer is undoubted: they are the methods of experiment. Although invaluable as an adjunct and for purposes of corroboration, clinical and pathological observations in man are in themselves insufficient, as a rule, for the definite establishment of any new and important principle in medicine. This is recognised by the lay press. Quite recently the *Times* newspaper, alluding to the alleged inhumanity to animals which is involved in the performance of experiments directed to the determination of questions of a physiological or pathological character, made the following remarks in a leading article: "Every improvement in the healing art, from the Middle Ages downwards, has been made or perfected by the results of such experiments, which are indispensable to the progress of science and which govern the daily practice of men who never performed an experiment in their lives and possibly never saw one. ..... It would be impossible for the most ardent anti-vivisector, if he were ill, to find in any civilised country a single doctor whose treatment of his case would not be guided by the knowledge gained by past experiment, possibly by experiment performed yesterday, possibly by experiment performed 200 years ago."

It may be affirmed, without fear of contradiction, that the advance of medical science will move along the same lines in the future as in the immediate past. It is rash to prophesy, but, at any rate, one may safely commit oneself to the opinion that the problems which are at present offering themselves most prominently for solution are of a chemical nature. The chemical characters of the products which the disease parasites form within the body, the physiological action of those products, and the circumstances of their formation; the chemical characters, modes of formation, and action of the anti-products which are formed by the organism for purposes of defence—these are a few of the questions which are just now awaiting solution. The sooner it is recognised that this is the direction which research must take in the immediate future the better for the progress of medical science. It must be frankly admitted that at the present moment we in this University—nay, in this country—are not in a position to satisfy the demand for research in this particular direction. Nor is it a demand to be easily satisfied. For the subject is one requiring a special knowledge of the principles and methods of modern chemistry as well as a thorough acquaintance with physiology. This is a combination which it has hitherto been difficult to meet with, probably because most of those who take up the study of physiology and pathology have studied chemistry only in so far as it seemed necessary for the ordinary medical course and not as if chemistry were to be the subject of their life work; whereas for such investigations as these it is imperative that those who undertake them should be thoroughly trained chemists. But as it is practically impossible for anyone who has not gone through the medical mill to obtain a teaching post in physiology, still less in pathology, there has been hitherto no inducement to trained chemists to direct their attention to this branch of their subject. The difficulty must be met by the establishment of special chairs of physiological and pathological chemistry to be occupied by men who are primarily chemists, but who have also some knowledge at least of physiology. The necessity for this has already been recognised in some quarters. In this matter, as in many others in which medical reform has been concerned, University College, London, has been the pioneer. A chair of chemical pathology was established there in 1896 and an old alumnus of this University, Professor Vaughan Harley, was placed in charge. But the accommodation which the College was able to allot to the new department was sadly lacking in both extent and equipment and as the chair was without endowment it was not possible for the occupant to devote his undivided attention to his special subject. The wonder only is that with so many drawbacks so much good work has been turned out. With this partial exception there has hitherto been no chair in any university in the United Kingdom dealing exclusively or even primarily with this important branch of medical science (although the Universities of Oxford and Cambridge have made a beginning by the establishment of special lectureships in physiological chemistry). But it has been reserved for one of the newest universities—for what, indeed, may be termed a university yet unborn—University College, Liverpool—to lead the van in this movement and not only to establish but also liberally to provide for an independent chair of biological chemistry, a step which has been rendered possible by the munificence of one of the citizens of Liverpool. Happy the university whose lot is cast in a wealthy city, the citizens of which are guided in the bestowal of their gifts towards objects tending to the advancement of knowledge and the alleviation of the sufferings of humanity.

You will have no difficulty in perceiving that in bringing before you the example of Liverpool my object is to point out that we in Edinburgh must also be moving; we cannot allow ourselves to remain behind any university in the world in a matter pertaining to the progress of medical knowledge. The need for such a chair is very evident and no one looking at the recent history of this University and considering the Carnegie benefaction, unique in its amount and object, as well as the magnificent gifts of the Hughes-Bennett Laboratory, the Usher Institute, and this very hall in which we are assembled, can entertain a doubt that when

we recognise and state our wants the means of providing for them will be forthcoming. Let us therefore hope that we may soon see the establishment of this chair so that the University to which we belong may maintain her place on the crest of the ever-advancing wave of medical science.

I have only now, ladies and gentlemen, to congratulate you in the name of the Senatus upon having reached the termination of your academic career and to wish you success in your future profession. You have become members of no mean university and in taking up your membership you have also assumed the obligation to uphold all that is most worthy of the ancient reputation of your alma mater.

In ordinary circumstances I should have concluded my address with these words. This is, however, no ordinary function but one never to be forgotten in the annals of our University. For we are assembled here not only for the customary purpose of admitting to the ordinary degrees, but also that we may confer the highest distinction which it is in our power to bestow upon the chosen representatives of the British dominions beyond the seas. To you, gentlemen, who have honoured us by accepting this distinction I beg to tender on behalf of my colleagues, for whom on this occasion I am privileged to speak, a cordial welcome into this University. Of all the universities of the United Kingdom it is the one which is, perhaps, the most closely connected with our great colonies, receiving on the one hand, as it does, each year an important contingent of students from them and, on the other hand, sending out of its best to assist in establishing the new universities which are springing up within the wealthy and populous communities which, on the important occasion of the King's Coronation, are so worthily represented by yourselves. Although we recognise that the representation of your respective countries at that historic ceremony is the primary purpose of your visit to the mother-country, we do not ignore the fact that there is another object, not less dear to the heart of every Briton, whether he inhabit this or the other side of the ocean. It is common knowledge that you are also here for the purpose of endeavouring to find means to weld together more securely for mutual interest and protection the scattered parts of this vast Empire, which are already united by the more sentimental ties of blood and of loyalty to the throne. Gentlemen, in that endeavour we devoutly wish you Godspeed!

ON THE RESULTS WHICH HAVE BEEN OBTAINED BY ANTI-TYPHOID INOCULATION.

With Separate Table (see Supplement).

BY A. E. WRIGHT, M.D. DUB.,

PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY.

THE question of the utility of the process of anti-typhoid inoculation has been gradually solving itself by the accumulation of statistical materials. The time would now appear to be ripe for presenting this material in the aggregate, and for considering what is established by it with regard to the results of the inoculations. By the generosity of the proprietors of THE LANCET—a generosity which I desire gratefully to acknowledge—I am enabled to set out here in a synoptical form all the statistical material which I have been able to bring together in connexion with the results of anti-typhoid inoculation. My cordial acknowledgments are due also to Sir William Taylor, K.C.B., Director-General, Army Medical Service, for permission to make use of certain hitherto unpublished items which have been supplied to me personally.

I have arranged the material at my disposal in the form of two tables. In Table I. I have set out the statistical materials in the form in which those materials were originally published or rendered for consideration. Into this table I have incorporated, in addition to the number of the inoculated and uninoculated respectively and the number of cases and deaths in each group, also certain other data, such as the period of exposure and the interval which elapsed between inoculation and the presumed exposure to infection. I have also in each case given the authority for the figures and in the case of already published statistics a reference to the literature.

In Table II. I have set out such other facts as seem to me essential for the critical study of the statistics. I have had in view here on the one hand the student of statistics seeking to know how far statistical canons have in each case been conformed to, and on the other hand the thoughtful man, other than the professed student of statistics, who may be seeking to know what conditions must be complied with before statistical evidence such as that included in Table I. becomes coercive. Let it be noted that the conditions of statistical perfection are conditions which are practically unattainable in actual life. It follows that to exact that only such statistics should be considered as are flawless would be to exact that all statistical evidence without exception should be rejected. There is a way out of this dilemma. We shall, as a matter of fact, have reconciled the demands of our statistical conscience with the demands of practical life if, after scrutinising and laying bare to ourselves the flaws in our statistics, we in each case appraise the effect of the flaw upon the cogency of the statistical conclusion arrived at. Table II., supplying as it does examples of nearly every variety of statistical flaw, will provide illustration of the importance of recognising the principle which has just been laid down. In the case of the statistics relating to the effect of anti-typhoid inoculation in the garrison of India for the year 1900 (Tables I. and II., serial number 6), there is a confessed error in the enumeration of the inoculated. That error may, it is estimated, amount to "some hundreds." The proper way to deal with this situation is, not to set aside the statistics, but to consider instead what would be the maximum effect which an error of this particular magnitude is capable of exerting upon the statistical conclusion. Interpreting the error of "some hundreds" in the enumeration of the inoculated in a liberal spirit as an error of 600 one way or the other, the error in the enumeration of the group would amount to a 10 per cent. error. This particular statistical conclusion is thus seen to be subject to a 10 per cent. error. In relation to the broad issues which we propose here to discuss such an error is insignificant. It is a matter of quite subordinate interest whether the diminution of mortality in the inoculated was the 4·4-fold diminution which is actually registered, or a 4·8-fold, or only a 4-fold diminution.

An even more striking illustration of the importance of working in accordance with this statistical principle is afforded by the statistics relating to the garrison of Egypt for 1900 (Tables I. and II., serial number 5). Here we have recorded an 18-fold diminution in the incidence of typhoid fever among the inoculated, numbering 700 odd, as compared with the uninoculated taken as some 2600 odd. If we include in the number of the inoculated those inoculated in the previous year who are specifically excluded from the statistical returns here in question we arrive at an inoculated strength of about 1000 and obtain a 25-fold diminished incidence. If, again, waiving the legitimacy of this course, we include among the uninoculated the full number of troops who passed through Egypt in the course of the year in connexion with military movements to South Africa we bring up our uninoculated strength to some 5000 and obtain only a 13·5-fold diminution. For settling the broad issue which we have in view in this paper it matters nothing whether we accept the highest or the lowest of the above figures as representing the diminution in typhoid incidence achieved in the inoculated.

Statistical flaws which make much less impression upon the imagination than those just considered may, as is shown by a comparison of the conclusions arrived at in Dr. A. Crombie's two statistical papers, mislead us much more seriously. The conclusions arrived at in the first paper are, as is brought out (Table II., 22) in connexion with the critical examination of this series of statistics, invalidated by the younger age and smaller case mortality (*vide infra*) of the inoculated. In the case of Dr. Crombie's second paper the first of these factors is taken into account with the result that the conclusion drawn from the comparison of the inoculated with the uninoculated falls into line with the conclusion which emerges from the aggregate of the statistics embodied in Table I.

The possibility of fallacy in connexion with conclusions based on small figures is illustrated in the fact that in some of the smaller series of statistics here presented the relative case mortality of the inoculated and uninoculated differs from the relative case mortality of the two groups, as deduced from the event of large comparative series of cases. The possibility of a similar fallacy suggests itself also in connexion with certain of the conclusions arrived at in Dr. Crombie's papers. I refer (*a*) to the conclusion in the first paper that the protective effect of inoculation has largely disappeared after the expiration of five months;

TABLE I.—STATISTICS OF ANTI-TYPHOID INOCULATION.

Serial number.	Group which was under observation.	Interval between inoculation and commencement of period of exposure.	Place where group was exposed to infection.	Period of observation covered by the statistics.	Authority for the statistics.	Reference to published literature or other source of information.	Number of inoculated and uninoculated in the group.		Number of cases of typhoid fever.		Percentage incidence of the disease.		Number of deaths from typhoid fever.		Percentage death-rate for typhoid fever.		Case mortality—i.e., proportion of deaths to cases.		Supplementary facts.
							Inoculated.	Uninoculated.	In inoculated.	In uninoculated.	In inoculated.	In uninoculated.	In inoculated.	In uninoculated.	In inoculated.	In uninoculated.	In inoculated.	In uninoculated.	
1	Nurses and Attendants, Barming Asylum.	No interval.	Barming Asylum, Maidstone	October to end of epidemic.	Dr. J. S. Tew Mr. A. G. R. Foulerton. Dr. A. M. Jackson.	Public Health, March, 1898. THE LANCET, June 2nd, 1900.	84	116	0	4	0	1·24	—	—	—	—	—	—	12 cases of typhoid fever had occurred in the staff, numbering about 200, before the inoculations were undertaken.
2	Inoculated Regiments and other Units of the British Army in India.	No interval.	Various Stations in India.	1899	Official returns.	Army Medical Report for 1899.	4502	25,851	44	657	0·98	2·54	9	146	0·2	0·56	1 in 4·9	1 in 4·5	—
3	15th Hussars, wives of same, and officers.	Probably a few weeks.	Meerut, India.	October, 1899, to October, 1900.	Official returns.	Brit. Med. Jour. and THE LANCET, Feb. 9th, 1901; reported by Prof. A. E. Wright.	360	179	2	11	0·55	6·14	1	6	0·27	3·35	1 in 2	1 in 2·2	—
4	Garrison of Ladysmith.	Two months to 11 months.	Ladysmith, South Africa.	Nov. 2nd, 1899, to Feb 28th, 1900.	Official returns.	Brit. Med. Jour. and THE LANCET, July 14th, 1900; reported by Professor Wright.	1705	10,529	35	1489	2·05	14·14	8	329	0·47	3·12	1 in 4·7	1 in 4·5	—
5	British Garrison of Egypt and Cyprus.	No interval.	Egypt and Cyprus.	1900	Report of principal medical officer, Egypt.	Brit. Med. Jour. and THE LANCET, May 4th, 1901; reported by Professor Wright.	720	2,669	1	68	0·14	2·55	1	10	0·14	0·37	1 in 1	1 in 6·8	—
6	British Garrison in India.	Varying from no interval to one year.	India.	1900	Official returns.	Army Medical Report for 1900.	5899	54,554	52	731	0·87	1·69	8	224	0·13	0·58	1 in 6·5	1 in 3·3	—
7	Patients in Tintown Hospital, Ladysmith.	No data.	South Africa.	—	Dr. D. Melville.	Brit. Med. Jour., vol. i., 1901.	—	—	30	265	—	—	2	5	—	—	1 in 15	1 in 53	—
8	Patients in Stationary Hospital, Harrismith.	,,	South Africa.	September, 1900, to September, 1901.	Major C. Birt R.A.M.C.	Brit. Med. Jour., Jan. 11th, 1902.	—	—	263	947	—	—	18	135	—	—	1 in 14·6	1 in 7	A comparison of 151 charts referring to inoculated patients with 317 charts referring to uninoculated patients showed that the height of the fever, the duration of the same, the percentage of relapses, and the number of daily evacuations were much less in the inoculated.
9	Patients in Portland Hospital.	,,	South Africa.	1900.	Dr. H. H. Tooth.	Brit. Med. Jour., March 16th, 1901.	—	—	54	178	—	—	4	25	—	—	1 in 13·5	1 in 7	—
10	Patients in the Irish Hospital.	,,	South Africa.	1900.	Dr. J. B. Coleman.	Transactions of the Royal Academy of Medicine in Ireland, vol. xix.	—	—	80	592	—	—	5	74	—	—	1 in 16	1 in 8	—
11	Patients in Scottish		South	1900	Colonel	Brit. Med. Jour.													

11	Patients in Scottish National Red Cross Hospital.	,,	South Africa.	1900	Colonel Henry Cayley, I.M.S.	Brit. Med. Jour., Jan. 12th, 1901.	—	—	15	70	—	—	1	10	—	—	1 in 15	1 in 7	—
12	Patients in Imperial Yeomanry Hospitals.	,,	South Africa.	1900–1901	Dr. A. Elliot and Dr. J. W. Washbourn.	THE LANCET, Jan. 18th, 1902.	—	—	47	301	—	—	4	26	—	—	1 in 11·9	1 in 11·8	—
13	Patients in a Variety of Military Hospitals.	,,	South Africa.	1900–1901	Dr. R. W. Dodgson.	Official Report.	—	—	764	3374	—	—	63	510	—	—	1 in 12	1 in 6·6	—
14	Staff of the Portland Hospital.	A few weeks.	South Africa.	Part of 1900.	Dr. Tooth	Brit. Med. Jour., March 16th, 1901,	28	13	7	3	25	23	0	1	0	7	0 in 7	1 in 3	Five of the inoculated had very light attacks.
15	Staff of Imperial Yeomanry Hospital, Deelfontein.	No data.	South Africa.	No data.	Dr. Elliot & Dr. Washbourn.	THE LANCET, Jan. 18th, 1902.	59	25	4	4	6·8	16	0	0	—	—	0 in 4	0 in 4	—
16	Staff of Imperial Yeomanry Hospital, Pretoria.	In most cases a few weeks.	South Africa.	August, 1900, to March, 1901.	Dr. Dodgson.	Official report.	32	72	3	7	9·3	9·7	0	0	—	—	0 in 3	0 in 7	—
17	No. 8 / No. 9 / No. 10 General Hospitals (staffs of).	A few weeks.	Bloemfontein, South Africa.	April to August, 1900.	,, / ,, / ,,	,, / ,, / ,,	21 / 87 / 0 ›108	110 / 47 / 119 ›276	5 / 11 / — ›16	44 / 13 / 36 ›93	›14·8	›33·5	0 / 1 / — ›1	8 / 2 / 6 ›16	›0·9	›5·8	›1 in 16	›1 in 5·8	The period of observation covers the period of "the great epidemic."
18	Staff of Second Section, Scottish Red Cross Hospital.	A few weeks.	South Africa.	Part of 1900.	Colonel Cayley, I.M.S.	Brit. Med. Jour., Jan. 12th, 1901.	70	12	2	4	2·8	33·3	1	1	1·4	8·3	1 in 2	1 in 4	There was no enteric in the first section which consisted of 77 doubly inoculated and two uninoculated persons. The third section which consisted of 20 inoculated persons also remained free.
19	Fifth Battalion, Manchester Regiment.	A few weeks.	Winburg, South Africa.	July, 1901, to February, 1902.	Lieutenant J. W. West, R.A.M.C.	Brit. Med. Jour. and THE LANCET, April 5th, 1902, reported by Professor Wright.	500	547	3	23	1·5	4·2	0	7	0	1·3	0 in 3	1 in 3·3	The three inoculated had very mild attacks. Some of the inoculated were not yet out of danger at the date of rendering the report.
20	City Imperial Volunteers.	Probably a few weeks.	South Africa.	1900	Surgeon-Major R. R. Sieman, C.I.V.	Privately communicated.	700	494	60	39	8·5	7·9	9	11	1·3	2·2	1 in 6·7	1 in 3·5	—
21	Patients in Richmond Asylum, Dublin.	No interval.	Dublin.	September, 1900, to December, 1900.	Mr. H. M. Cullinan.	Brit. Med. Jour., Oct. 26th, 1901; reported by Professor Wright.	339	296	6	30	1·8	10·0	1	4	0·3	1·3	1 in 6	1 in 7·5	The period of observation closed with the end of the epidemic.
22	Officers invalided from South Africa (first series).	A few weeks.	South Africa.	No data.	Colonel A. Crombie, I.M.S.	THE LANCET, May 3rd, 1902.	112	109	32	24	28·5	22·0	—	—	—	—	—	—	—
23	Officers invalided from South Africa (second series).	In most cases only a few weeks.	South Africa.	No data.	Colonel A. Crombie, I.M.S.	THE LANCET, August 16th, 1902.	102	85	34	28	33·3	32·9	—	—	—	—	—	—	The proportion of typhoid convalescents among the inoculated under 26 years of age was 1 in 5; among the uninoculated 2 in 5; among 13 twice inoculated 1 in 1·3; among 89 once inoculated 1 in 5·7
24	7th Hussars, South Africa.	A few weeks.	South Africa.	Dec. 20th, 1901, to June 20th, 1902.	Captain W. A. Ward, R.A.M.C.	Official report.	307	244	9	20	2·9	8·2	0	3	0	1·2	0 in 9	1 in 6·7	The incidence in 73 once inoculated was 4·1 per cent.; in 234 twice inoculated 2·3 per cent.

(*b*) to the conclusion that persons who undergo double inoculation are rendered more susceptible to typhoid fever than the uninoculated; and (*c*) to the conclusion that persons over 35 years undergoing the inoculation are similarly rendered more susceptible than the uninoculated.[1]

Having said this much by way of preface and illustration of the general principle which I have taken as my guide I may endeavour to indicate the general result of the statistics.

GENERAL RESULT OF THE STATISTICS.

It would be illegitimate to express the results in the form of an arithmetical expression representing as the case might be the average diminution of the incidence and the average diminution in the death-rate from typhoid fever in the inoculated. It would be illegitimate to do so because the degree of exposure to infection and the proportion of inoculated to uninoculated are in each case different.

Incidence.—A study of the statistical material will, however, show that in every case except that of the City Imperial Volunteers (where the statistical materials at my disposal consist only of the bald figures incorporated in the table) and in the case of the staffs of the Portland Hospital and Imperial Yeomanry Branch Hospital at Pretoria, there was at least a two-fold reduction in cases of typhoid fever in the inoculated. In certain cases, notably in those to which the statistics designated by the serial numbers 3, 4, 5, 18, and 21 apply, a greater reduction in the incidence of typhoid fever was achieved—a reduction varying from a six-fold to a 28-fold reduction.

Case mortality.—Superadded to the diminished incidence of the disease there is a striking diminution of case mortality, as is attested by the extensive statistical material collected by Dr. R. W. Dodgson (Tables I. and II., 13) and more particularly by the accurate and extensive figures furnished by Major C. Birt, R.A.M.C., personally (Tables I. and II., 8) and by the Staffs of the Civil Hospitals (Tables I. and II., 9, 10, 11, 12, 14) in South Africa. It may be taken that in the aggregate the proportion of deaths to cases among the inoculated is approximately half that among the uninoculated.

Death-rate.—The combined effect of the diminished incidence and diminished case-mortality manifests itself in the diminished death-rate from typhoid fever among the inoculated. The minimum reduction of death-rate chronicled in the table is the twofold diminution in the case of the City Imperial Volunteers. As will be seen, the reduction of death-rate in case of the inoculated has often exceeded, and has seldom fallen below, a four-fold reduction.

CONCLUDING REMARKS.

In bringing this summary to a conclusion I am anxious to re-emphasise a point already emphasised by me in previous papers[2] that there is in connexion with all protective inoculation a risk to be considered. There is the risk that (*a*) in the case where the patient's resistance is naturally low or has been reduced, as is often the case, by a previous attack of typhoid fever; (*b*) in the case where the patient is inoculated with a full dose of vaccine in actually infected surroundings; and (*c*) in the case where the patient is inoculated with an excessive dose or is re-inoculated too soon, the system may be left more open to infection at a period when it stands in need of protection. The facts set out in Column VI. of Table II., and possibly some of those which have arrested the attention of Dr. Crombie, seem to me to indicate the reality of this risk. It must be the task of the future to try to minimise the risk, on the one hand, by working out an adequate method of standardisation of the vaccine, and, on the other hand, by combining with the study of the changes produced in the blood by anti-typhoid inoculation the study of the blood in the typhoid convalescent and the study of the gradual success or failure of the process of immunisation in the actual typhoid attack. It is not necessary to insist on the urgency of this task.

[1] The suggestion that these conclusions may be due to the fallacy of small figures is made in the case of conclusion (*a*) in view of the fact that the Indian and Egyptian statistics which deal with an aggregate of some 4000 men inoculated in the previous year do not disclose any greater liability to attack on the part of these men than on the part of those inoculated during the current year, and in the case of conclusion (*b*), in view of the fact that the larger experience of Colonel H. Cayley, I.M.S., and Captain W. A. Ward, R.A.M.C., points (*vide* "Supplementary facts" incorporated into Table I. in connexion with the eighteenth and twenty-fourth series of statistics) to a greater degree of protection being conferred by double inoculation.

[2] On the Changes Effected by Anti-typhoid Inoculation in the Bactericidal Power of the Blood; with Remarks on the Probable Significance of these Changes. THE LANCET, Sept. 14th, 1901, p. 715. Notes on the Treatment of Furunculosis, Sycosis, and Acne, by the Inoculation of a Staphylococcus Vaccine, and generally on the Treatment of Localised Bacterial Invasions by the Therapeutic Inoculations of the Corresponding Bacterial Vaccines. THE LANCET, March 29th, 1902, p. 874.

THE

CLINICAL USE OF THE IPECACUANHA ALKALOIDS.

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IN a paper published in THE LANCET of Nov. 23rd, 1895, p. 1274, upon the Pharmacology of the Ipecacuanha Alkaloids I suggested the use of the salts of cephaëline or emetine for certain clinical purposes in place of the notoriously unreliable galenical preparations of the ipecacuanha root. Since that time the new edition of the British Pharmacopœia has been issued and the liquid preparations of ipecacuanha have been standardised to total alkaloids. Considering the differences which exist in the relative actions of the two chief alkaloids, especially as regards the emetic dose, and also the very wide divergence in the relative proportions in which these alkaloids may be present in different varieties of ipecacuanha root, it is not surprising that in spite of the standardisation to total alkaloids the galenical preparations of ipecacuanha are not altogether satisfactory. Paul and Cownley have shown[1] that while two samples of ipecacuanha root may each contain about 2 per cent. of total alkaloids, in the one (Brazilian) 72·14 per cent. may be emetine and 25·87 per cent. cephaëline, and in the other (Columbian) 40·5 per cent. emetine and 56·8 per cent. cephaëline, thus reversing the relative proportions of the two alkaloids. Since well crystallisable salts of these alkaloids are easily to be obtained, and at a moderate cost when the small dose is remembered, it seems desirable in the interests of accurate medication to use them in place of the less certain preparations of the root, and it is to be hoped that the next edition of the Pharmacopœia will contain a stable salt of emetine. During the last seven years I have been using certain salts of cephaëline and emetine for clinical purposes as occasion offered, both personally and in my own family, and also in hospital practice, and have every reason to be satisfied that in the hydrochloride and hydrobromide of emetine we have stable salts of reliable action which can be given in small and convenient doses for expectorant, depressant, or emetic purposes. I have had no opportunity of trying the effect of the alkaloids in dysentery or in anthrax and am not convinced that they have any special diaphoretic action. The alkaloids are always best given by the mouth, as local irritation is very apt to follow hypodermic injection.

For the purpose of comparison solutions of the different salts were prepared in water and in different strengths of alcohol. Half of each solution was used for clinical purposes, the other half was set aside and examined from time to time as to its keeping properties and activity. Some of my solutions have now been kept for several years and are still active; it is, however, not advisable to expose them to a strong light. Cephaëline hydrochloride was soon found to be less suitable for the ordinary uses of ipecacuanha in catarrhal conditions and bronchitis than the emetine salts. The emetic action of cephaëline is so powerful that it is very difficult to regulate the dose so as to obtain any effect at all without causing nausea and sickness after a few days' continued use. In one case in an adult I found even $\frac{1}{10}$th grain every four hours produced nausea and vomiting within three days. At the same time the effect upon the secretions of the nose and respiratory tract and the depressing action on the pulse were less marked than could be obtained by doses of emetine which caused no sickness. Another reason for preferring emetine to cephaëline was that the salts of the latter appeared to be less stable, since the solutions after a time became of a brownish yellow colour when those containing emetine and kept under the same conditions were still colourless. I have not been able to distinguish any difference in the mode of action or keeping properties of the two salts of

[1] Pharmaceutical Journal, April 26th, 1896.

emetine which I have used—viz., the hydrochloride and the hydrobromide; the solutions of these salts in 20 per cent. alcohol have remained uncoloured, clear, and active for several years, and there seems no reason to doubt their permanence within reasonable limits of time. Pharmaceutically, in the specimens I have obtained the hydrobromide appeared the purer salt, as it was whiter and better crystallised. The solutions at first employed were 1 in 100 and proved too strong for convenience, as the expectorant dose was from one to three minims for an adult. Solutions of the strength of 1 in 1000 were then prepared (for some of these I wish to thank Dr. B. H. Paul who also kindly supplied me with the salts of the alkaloids), but though satisfactory in their action the dose was inconveniently large, especially for emetine purposes. The 1 in 1000 solution of emetine hydrochloride does not in my experience quite equal in activity freshly made vinum ipecacuanhæ which is standardised to 1 in 1000 of total alkaloids.

During the last two years I have used a solution of emetine hydrobromide in 20 per cent. alcohol containing one grain in each fluid ounce. This solution has proved very satisfactory, as it has kept unchanged up to the present time, is very active and reliable, and the dose is of a convenient size—viz., for adults from five to 20 minims for expectorant and depressant purposes and from one to three drachms as an emetic. I have also used a solution containing 1 in 100 of morphine hydrochloride and 1 in 500 of emetine hydrochloride as a sedative and diaphoretic in place of Dover's powder, but have not been entirely satisfied that the action of the solution in equivalent doses is equal to that of the powder. I am now comparing a solution containing 1 in 500 of emetine hydrochloride and 1 in 7½ of liquid extract of opium with another solution containing 1 in 10 liquid extract of ipecacuanha and 1 in 100 of morphine hydrochloride. It is still too early to draw any conclusions as to their relative value of the pure alkaloid and crude drug in either case.

My clinical opportunities of observing the therapeutical effects of emetics are so few that I have been unable to test sufficiently whether cephaëline possesses any properties (especially absence of circulatory depression) which will enable it to compete successfully with emetine and apomorphine as an emetic. Unless clinical observation reveals such properties there does not seem any special indication for the use of cephaëline, since even the emetic dose of the emetine salts is small enough for all practical purposes.

I have nothing further to add to my former communication respecting the pharmacological action of the alkaloids save that subsequent experiments have only confirmed my former results. Ipecacuanhic acid has also been tried experimentally and save for some power of contracting blood-vessels has not shown any marked pharmacological action. No experiments have been done with respect to the third alkaloid present in small quantities in ipecacuanha root, but this has recently been shown to be comparatively inactive by Professor Kobert, whose work has also confirmed my chief conclusions respecting the relative actions of cephaëline and emetine.

Manchester.

A PLEA FOR TENOTOMY OF THE TENDO ACHILLIS IN COMPLICATED FRACTURES OF THE LOWER EXTREMITY.[1]

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WE all agree that in the treatment of fractures the cardinal points aimed at are the immediate reduction of the deformity and keeping the fragments in accurate apposition during a period of some weeks. An examination of the internal structure of long bones reveals a beautiful arrangement of the bone fibres, through which weight and stress are transmitted in such a manner as to distribute the force in a very much divided manner over the ends of the bones where they enter into the formation of joints. The shaft itself develops into a cylindrical column, the bony tissue of which is thick and compact; trace this towards the ends of the bones and it will be found to get thinner and thinner, but as it does so trabeculæ of bone will be seen arising therefrom and soon interlacing with others, thus allowing the bone to expand and yet still remain as strong mechanically. These trabeculæ are developed as the result of weight-bearing in the lower extremity and are best marked in bones showing prominent ridges for muscular attachments. After fracture the more accurately we replace the broken fragments in the first instance the less need will there be for provisional callus. This is well shown in a transverse fracture of the tibia, where reduction is easy and subsequent deformity so slight that the actual site is not readily made out; on the other hand, look at the callus often found around an oblique fracture of the tibia where daily attempts have been made by hands, pads and traction to maintain reduction, and we often find a large mass of callus and an altered line of the limb.

If long bones unite with any degree of deformity we have disturbed the relations of the lines of force through the trabeculæ and changed the relative relation of the joint surfaces to the weight-bearing line of the limb, and not until many months have elapsed during which a re-casting of the lines of bone is taking place and a re-arrangement of the forces acting on a joint, do we arrive at a result enabling the workman to carry on his work. During all this time the patient cannot dispense with crutches or sticks, and Golebiewski in his book on "Diseases Caused by Accidents" pointedly remarks that "if the patient has to depend on a cane for walking the rate of insurance (under the German State Insurance laws) cannot well be less than 50 per cent." I doubt whether we sufficiently realise the length of time before a slightly deformed tibia is able to bear full weight. To a labouring man this is, of course, very serious and ought to emphasise the necessity for striving to attain in all fractures the best possible results in the least possible time. It is our duty to reduce *accurately* deformity soon after the accident by any and every means in our power, and if in any doubt we may seek the aid of x rays. Deformity is produced by the force of the accident, the action of muscles, and any subsequent rough handling. To overcome the action of muscles we resort to flexion, extension, and traction, and maintain the reduction by the pressure of pads, splints, and position. Should these fail, operation becomes necessary, either tenotomy, pegging, wiring, or screwing. The great majority of fractures of the lower extremity are readily adjusted and call for no special remark, but certain fractures are always troublesome and difficult to treat—e.g., (1) fracture through the lower end of the femur; (2) oblique fractures of the tibia; (3) fracture of the tibia and fibula low down; and (4) fractures of the os calcis. Look at museum specimens or at x-ray photographs in any collection and you will see that mal-union in these positions is very common, and we all know of patients limping along many months after the accident, wearily waiting for the time when they can dispense with assistance. An examination will quickly reveal an altered line of axis and after many months the limb may become useful, although much deformed. It is this long convalescence that we should aim at diminishing and the secret of success lies in the accurate apposition of the fragments from the beginning. Innumerable appliances have been devised to overcome the action of the gastrocnemii, hamstrings, and extensors of the thigh. I need only mention the double inclined plane, Syme's stirrup splint, Macintyre's splint, and Roughton's splint.

When the chief deforming agent is the gastrocnemius we must effectively prevent its action and in slight deformities this is readily brought about by flexion. Traction often increases the trouble or proves irksome after a few days, even if it does not damage the skin. When the muscle is acting at a great mechanical advantage the hope that it may be overcome by steady slowly-increasing traction is often doomed to disappointment. By traction on the leg in a very oblique fracture of the tibia the deformity is often increased and the attempt to remedy matters by pads often makes matters worse, for although the pointed fragment under the skin in front may be depressed the sharp end of the other fragment may be, and often is, pushed backwards into the calf muscles and the subsequent result is not satisfactory. Slight degrees of flexion at the knee can be tolerated, but extreme degrees cannot. If, then, we find that a position compatible with comfort does not relax the gastrocnemius the tendo Achillis ought to be divided. We are in danger of

[1] A paper read before the Liverpool Medical Institution on April 24th, 1902.

forgetting its usefulness in the rage for wires and screws, and it came as a surprise to me to read in Tillman's Surgery "that tenotomy of the tendo Achillis is much practised—especially in England." My observations are entirely to the contrary and I should have been inclined to replace the word "practised" by "neglected." Erichsen is almost silent on the subject, merely quoting Bryant, but he qualifies the allusion by stating that tenotomy "might be of use" in fractures of the lower end of the femur. The more modern text-books mention the proceeding, but lay no stress on its application. Jonathan Hutchinson, however, in a translator's note in "Helferich's Fractures" advocates tenotomy and speaks highly of it in complicated fractures.

It is a pleasure to see the difficulties of a case of oblique fracture disappear as soon as tenotomy is performed, the sharp projecting fragment immediately falls into line and the subsequent treatment becomes of the simplest description and entirely free from anxiety. Tenotomy can easily be performed under eucaine, but in very nervous patients nitrous oxide, or even other anæsthetics, may be necessary. I have only had occasion to tenotomise the tendo Achillis 12 times, but in each case any other treatment short of wiring or screwing would have resulted in faulty union. Even after wiring fractures of the lower extremity if any great gastrocnemius strain acts on the wire the tendon ought to be divided, otherwise the wire (or screw) will quickly loosen by bone atrophy. Long before the patient is up the tendon has united and I have not found it necessary to keep oblique fractures longer in bed than transverse fractures. The cases thus treated have been as follows. Femur: fracture of the lower end; mal-union; wiring and tenotomy. Tibia: upper third; comminuted. Tibia: oblique, below middle—three simple and three compound. Tibia: lower end, with fibula and displacement backwards—three cases. Tibia: old fracture; mal-union; operation; lower third—one case. The treatment should prove of use in separation of the lower epiphysis of the femur, fracture of the os calcis, and dislocation or fracture of the astragalus.

Liverpool.

SOME OBSERVED VARIATIONS IN THE PHOSPHATES AND UREA OF URINE.

BY EDWY G. CLAYTON, F.C.S., F.I.C.

THE appended results of determinations by the writer of phosphoric acid, urea, &c., in certain pathological and other urines, may be useful for reference. Such additional details are given as serve to indicate the character of the samples.

The unusually low phosphates and urea in the case of tuberculosis, and in sample B, as well as the evident general correspondence of the proportions of both constituents with the varying conditions represented by these specimens of urine, seem to be the points most worthy of remark. Also the uric acid in the first case is decidedly low, but the salt and sulphuric acid do not present such notable departures from normal proportions.

RESULTS.

—	Urine in a case of tuberculosis of the bladder of 12 months' standing (male).	Urine in diabetes mellitus—three stages. (One individual—male.) A. Midnight to 8 A.M.	B. 7 A.M. to 4 P.M. (10 days later than A).	C. Midnight to 8 A.M. (13 days after B).	Normal urine. (One individual—male.) 1. Night.	2. Morning.	3. Afternoon.
Reaction	Barely acid.	Very acid.	Moderately acid.	Moderately acid.	Acid.	Acid.	Less acid than 1 and 2.
Specific gravity	1011·5	1018	1028	1025	1028	1027	1018
	(1) Grammes per litre (parts in 1000). (2) Grammes per diem (24 hours).*						
	(1) (2)	(1) (2)	(1) (2)	(1) (2)	(1) (2)	(1) (2)	(1) (2)
Phosphoric acid (P_2O_5)	0·94 = 1·26	1·38 = 2·07	1·37 = 2·05	2·06 = 3·09	3·93 = 5·89	3·57 = 5·36	1·85 = 2·78
Urea	15·66 = 23·49	25·7 = 38·5	14·6 = 21·9	29·9 = 44·85	30·0 = 45·0	—	—
Uric acid	0·24 = 0·36	—	—	—	—	—	—
Albumin	0·70 = 1·05	Minute trace	Minute trace.	None.	None.	None.	None.
Sugar	None.	None.	1·23 = 1·84	"	"	"	"
Sulphuric acid (SO_3)	1·34 = 2·01	—	—	—	—	—	—
= H_2SO_4	1·64 = 2·46	—	—	—	—	—	—
Sodium chloride	8·19 = 12·28	—	—	—	—	—	—
Appearance of specimen	Very pale yellow; turbid; on standing, a copious, light-coloured, translucent deposit, with a pinkish-red upper layer, and containing a few opaque white flocculi. Odour normal but feeble.	Pale amber; clear; slight deposit on standing.	Pale amber; somewhat cloudy; flocculent sediment.	Medium yellow; clear; slight flocculent sediment.	Amber-coloured; very slightly turbid (urates).	Amber-tinted; clear.	Straw yellow; rather turbid (phosphates).
Nature of deposit on standing	Chiefly pus; some blood (confirmed spectroscopically) and numerous fat globules; no urates, uric acid, or phosphates visible.	Uric acid only.	A little uric acid; mucus, epithelium débris.	No uric acid; some mucus and epithelium cells.	Chiefly phosphates.	A little mucus, &c.	Phosphates only.
Bacteriological investigation of the deposit	Very many tubercle bacilli (Ziehl-Neelsen method, confirmed by Bunge-Tranteroth process).	—	—	—	—	—	—

* Taking the average daily amount of the excretion in health as 52 ounces = 1500 cubic centimetres.

Holborn Viaduct, E.C.

NOTE ON THE ORIGIN OF URINE ALBUMIN.

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GÖTTINGEN.
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As the result of the injection of various proteid bodies into animals substances are formed in the blood which are capable of precipitating *in vitro* solutions of the proteid materials originally used for inoculation. The substances possessing this property are commonly termed "precipitins." Specific biological tests have been in this manner obtained for a number of proteid bodies. For example, an animal previously treated with ordinary milk yields a serum which precipitates the milk casein. Similarly, precipitins have been obtained for egg albumin, globulin, peptone, &c., and likewise for the albumins present in urine. The serum of animals treated with albuminous urine precipitates the albumin present in fresh samples of urine. The recent experiments of Mertens[1] appeared to furnish conclusive proof that the albumin in nephritic urine is derived from the blood. Mertens found that the serum of rabbits treated with human blood precipitated solutions of the albumins present in urine. There appears, however, to be a possible source of fallacy in Mertens's observations, inasmuch as he did not test whether a precipitate could likewise be obtained by the injection of the proteid constituents of the kidney epithelium. It is possible that the group of proteids present in the different cells of the human body which are the factors in the production of precipitins may be closely related and that the differences in their action may be one of degree. There are observations which tend to favour the supposition. For example, hæmolysins may be produced by the injection of more than one kind of animal cell. This has been confirmed by the recent researches of Schütze—a hæmolysin being obtained by the injection of muscle albumin.

My experiments were undertaken with a view of furnishing the necessary control that appeared to be lacking in Mertens's experiments—viz., whether the injection of kidney substance resulted in the production of a precipitin for urine albumin. A series of unexpected difficulties occurred in the course of the experiments which were only gradually overcome. It may be of practical value to refer to these briefly. The first series of experiments consisted in the injection of the kidney substance of the rabbit into guinea-pigs. A direct injection of the kidney substance was avoided as it was doubtful whether the tissues of the guinea-pig could adequately or completely dissolve the injected material. The expressed kidney cell plasma was therefore employed as obtained by the cell grinding methods in use at the Jenner Institute. One cubic centimetre of the kidney cell plasma was inoculated into guinea-pigs and this dose was repeated at intervals; whilst five cubic centimetres of fresh rabbit serum were likewise injected intraperitoneally into another series of animals. The guinea-pigs, however, proved too sensitive to the injections of this material and the experiments had to be abandoned owing to the toxic effects produced. The experiments were accordingly reversed—i.e., the serum and kidney substance of the guinea-pig were injected into the rabbit. The guinea-pig was killed and the blood collected. The kidneys were then carefully washed out with physiological salt solution in order to remove the blood and serum as completely as possible. The injections of the ground-up kidney substance were made subcutaneously. These experiments were again unsuccessful, the animals succumbing after several injections. The serum of the animals, so far as it could be tested, gave no specific reaction with the blood of the guinea-pig or with urine albumin.

A third series of experiments took a more favourable course, inasmuch as a number of the animals remained alive and did not lose in weight. The material used for injection consisted of kidney substance which had been simply ground up in an ordinary mortar with the addition of physiological salt solution. The animals exhibited a much greater tolerance to the injection of this material than was the case when the kidney cell plasma obtained by the cell grinding methods was used. This difference in action is a point that appears to me to merit separate investigation, especially as regards the toxic effects on the central nervous system that may follow the injection of certain organ extracts and cell juices. The experiments did not, however, appear likely to yield any definite results as regards the production of precipitins and were intermitted.

In a final series of experiments human kidney substance was used as the material for injection. The kidney was in the first instance washed out with physiological salt solution and a portion of it was ground up in a mortar with salt solution. Chloroform was added to the emulsion of kidney substance thus obtained. The chloroform was removed by evaporation before each injection. Another portion was treated according to the method employed by Schütze[2] for the preparation of muscle albumin and the powder obtained was dissolved in a weak soda solution. The solution on testing gave the usual proteid reactions. The solution was likewise injected into the rabbit. In neither instance did the animals markedly suffer from the injections of amounts varying from two to five cubic centimetres. The animals received at intervals from six to seven injections of the emulsified kidney substance and of the solution of kidney albumin respectively. They were then killed and their blood serum was treated in the following manner. The serum in each case was added in various proportions to human urine containing albumin and also to solutions of blood albumin, and the tubes were kept under observation at blood heat. The results were negative; in no instance did any precipitate occur, even after a prolonged period of incubation.

These experiments therefore, so far as I have been able to carry them, tend to confirm Mertens's experiments and to support the view that the albumin present in nephritic urine is derived from the blood and is different from the specific kidney albumins. I hope to be able to continue the experiments and to test also the action of the serums obtained on solutions of kidney albumin. According to the results hitherto obtained a difference does appear to exist between the blood serum albumin and the kidney epithelium albumin. On the other hand, the investigations of von Dungern, Moxter, Metchnikoff, Schütze, &c., point to the existence of a relationship between the proteid constituents of the different epithelial cells as well as of the blood cells, inasmuch as the injection of one kind of cell may yield a serum which acts on several species of cells. I am indebted to Dr. Allan Macfadyen for his assistance in the performance of the experiments.

[1] Deutsche Medicinische Wochenschrift, 1901, No. 11, p. 161.

[2] Zeitschrift für Hygiene, Band 38, 1901, p. 467.

A NEW ROUTE FOR POSTERIOR GASTRO-JEJUNOSTOMY, WITH NOTES OF FOUR CASES.

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WHILST the operation of posterior gastro-jejunostomy has gained favour to a large extent at the present day, it has failed to become universally adopted on account of certain disadvantages connected with the route (through the transverse mesocolon) by which the anastomosis is effected. It is certainly not so easy as the anterior operation and requires a slightly larger incision. It cannot be performed outside the body cavity in the manner that the anterior operation can and by thus involving a greater peritoneal exposure it increases the risk of shock and peritonitis. Moreover, the necessary perforation of the transverse mesocolon may occasion troublesome hæmorrhage from mesenteric veins. As the patients on whom gastro-jejunostomy is performed are not infrequently in a serious condition of exhaustion these objections to the posterior route cannot be lightly dismissed. Cases are also on record in which the operation has only given temporary relief owing to subsequent contraction of the opening in the transverse mesocolon having caused constriction of the anastomosing loop of jejunum. Granted, therefore, that a posterior opening in the stomach has advantages it remains a question whether

the objections to the usual posterior route do not outweigh them.

Whilst operating upon a case of dilated stomach some months ago I noticed how easily the posterior wall could be reached through the gastro-colic omentum and it occurred to me that by the adoption of this route the advantages of the usual posterior operation could be obtained and at the same time the objections to it entirely avoided. The gastro-colic omentum is a thin functionless and practically bloodless membrane through which the finger can be easily pushed and is readily accessible through a small abdominal incision. Moreover, when the stomach is dilated its posterior wall sags downwards below the line of its greater curvature in such a way that it can be drawn through an opening in this omentum and the whole procedure performed outside the incision. When the operation by this route is complete the posterior wall of the stomach remains drawn down as a funnel-shaped process and any gastric contents can be seen passing through it immediately the clamps are removed.

I have adopted this gastro-colic route in the following four cases and have been much pleased with it. A posterior anastomosis is obtained with a minimum of peritoneal exposure and without interfering with the transverse meso-colon. The jejunum is drawn up in front of the transverse colon, as in the anterior operation, but I am not aware that this is any disadvantage. It usually crosses the colon well to the left where the latter passes backwards to the splenic flexure and consequently no pressure is exercised upon it.

CASE 1. *Primary gastric dilatation; posterior gastro-jejunostomy through the gastro-colic omentum; recovery.*—A man, aged 48 years, was admitted into the Bradford Union Hospital under the care of Dr. Crowley on Jan. 5th, 1901. He had been a heavy drinker and gave a typical history of dilated stomach. He was a big tall man but considerably wasted. His weight on admission was 8 stones 1 pound. The stomach was much dilated, reaching well below the umbilicus. There was a well-marked succussion splash. No tumour could be felt. He vomited at intervals large quantities of fermenting fluid containing sarcinæ. Free hydrochloric acid was present. He was put upon sulphite of soda in 20 grain doses and the stomach was washed out every morning. The quantities obtained from lavage were considerable, usually two or three pints in excess of the fluid poured in. He could easily retain five pints of fluid in the stomach. He remained under medical treatment for four months and improved for a time, although he only gained eight pounds in weight. He then began to lose ground and speedily lost weight. He was therefore transferred to my wards for operation.

On May 21st, 1901, I opened the abdomen and found a stomach of very large proportions without any apparent pyloric obstruction. I was about to perform the posterior operation by the ordinary route when I noticed how the posterior wall of the stomach bulged behind the gastro-colic omentum and it occurred to me that a posterior anastomosis could be very easily performed through this membrane. I therefore pushed my finger through and drew out a large fold of the posterior wall. I then caught up the jejunum, drew it up in front of the transverse colon, and attached it to the fold of the posterior wall of the stomach. Anastomosis was effected by a double row of sutures without any mechanical appliance. The serous suture was of silk and the mucous membrane suture of catgut. The opening made was a full two inches and was situated on the posterior wall close to the greater curvature of the stomach. At the conclusion of the operation I noted that the stomach wall remained drawn down at the site of the anastomosis projecting through the opening in the gastro-colic omentum as a wide funnel-shaped tube. After the operation the patient vomited twice when recovering from the anæsthetic, after which he never vomited again. He was fed by the rectum for 24 hours, after which he began with small quantities of fluid. On the tenth day the sutures were removed, the wound being healed. At the end of a fortnight he was taking solid food. At the end of the third week he was up and about and from this time he was weighed weekly. In five weeks he gained one stone five pounds. He then went into the country for six weeks when he gained another stone. I saw him some months ago. He has remained quite well.

This case, the first in which I adopted this method of operating, was apparently one of primary dilatation. There was no pathological change of any kind about the pylorus. The size of the stomach was very great. On one occasion five pints were introduced into the stomach during lavage and 172 ounces were drawn off.

CASE 2. *Dilated stomach on which pyloroplasty had been performed five years previously; posterior gastro-jejunostomy through the gastro-colic omentum; recovery.*—A man, aged 39 years, was admitted into the Bradford Union Hospital under my care on July 13th, 1901, suffering from symptoms of dilated stomach. Five years ago he suffered from severe pain and vomiting after food. In 1896 he was a patient in a hospital in which I was resident at the time. Pyloroplasty was performed upon him for a simple pyloric stricture. He says that his symptoms returned within 15 months of this operation and he went back to the hospital and was then advised to submit to gastro-jejunostomy. He refused and for the past three years he had been getting steadily worse, sometimes vomiting at intervals of a few days, but usually vomiting daily. On admission he weighed nine stones. He was somewhat emaciated but not greatly so. He stated that when in health he weighed 13 stones. He suffered from most obstinate constipation, his breath was very foul, and he frequently vomited fluid which looked exactly like pure yeast. After food he had severe pain coming on within an hour of the meal and relieved by vomiting. There was no definite tumour evident, but in the middle line was an old scar of a former operation. He was put upon sulphite of soda and the stomach was washed out daily. An excess of from one to two pints of fluid over and above the quantity introduced was usually withdrawn. This treatment was tried for a month. He steadily lost flesh, his weight falling to 8 stones 4 pounds before he consented to operation.

On August 20th I opened the abdomen under ether. The posterior wall of the stomach was easily drawn through the gastro-colic omentum and an anastomosis with the jejunum made by simple suture, as in the first case. The pylorus was surrounded by adhesions which fixed it to the liver. It was of abnormally large calibre, two fingers slipping through it without difficulty. The patient vomited a little mucus when recovering from the anæsthetic, after which he never vomited again. He got up on Sept. 10th. He was then taking solid food and had gained six pounds in weight. At the end of six weeks he had gained one and a half stones. He left the hospital on Oct. 17th in good health and weighing 10 stones 2 pounds [1]

This case was particularly interesting from the fact that a pyloroplasty had been performed four years previously, and the condition found at the second operation demonstrated very well how pyloroplasty may fail to relieve. Whilst the pylorus may be, as in this case, permanently enlarged, the operation produces adhesions which may cripple the stomach as effectually as the stricture for which the pyloroplasty was undertaken.

CASE 3. *Pyloric tumour with gastric dilatation; posterior gastro-jejunostomy through the gastro-colic omentum; entire disappearance of the tumour in four weeks; recovery.*—A married woman, aged 26 years, was admitted into the Bradford Royal Infirmary under my care on Dec. 9th, 1901. She stated that she had been quite well up to three months prior to admission, when she noticed a lump in the right side of the abdomen, just below the margin of the ribs. At the same time she began to have pain coming on in paroxysms after food. She gave up taking solid food and had less pain for a time. During the past six weeks she had constantly vomited after meals and the pain had been more severe. She had lost flesh rapidly. There had never been any hæmatemesis. On admission she weighed six stones eight pounds, being very thin and somewhat anæmic. The stomach was considerably dilated and showed well-marked peristalsis on palpation. The shape of the organ could be clearly defined and succussion splash was constantly present. At the pyloric end was a circular tumour. It moved up and down with respiration and was apparently connected with the stomach. It felt to be of about the size of a "penny bun." She vomited daily, generally after food. The vomit was fermenting and contained sarcinæ and free hydrochloric acid.

On Dec. 18th I opened the abdomen under ether. The stomach was considerably dilated, the greater curvature reaching within an inch of the umbilicus. On the anterior wall close to the pylorus was a radiating puckered scar. To the right of this the wall was much thickened, the whole

[1] This patient was seen in August, 1902. He was in perfect healt and weighed 12 stones.

pylorus feeling like a solid cylinder. This thickening spread on to the duodenum where its advancing edge could be felt and gave a sensation of cartilage to the touch. The glands along the lesser curvature were large. The pylorus and adjacent infiltrated tissues had a semi-translucent appearance as if they were œdematous. The whole mass was suspended from the liver by adhesions. The posterior wall of the stomach was drawn through the gastro-colic omentum and an anastomosis with the jejunum made by simple suture as in the other cases. The patient vomited a little mucus on returning to the ward, after which she was never sick again. The sutures were removed on the ninth day. On the twelfth day she had some fish. At the end of three weeks she got up. She then weighed six stones ten pounds. The tumour at this date was scarcely perceptible on palpation. I last saw her on March 24th, 1902. She weighed eight stones one pound and was perfectly well.

My first impression in this case was that the tumour was malignant. The very short history, without any previous illness suggestive of ulcer, and the large size of the tumour, which was apparently only three months old, certainly favoured this view. Against it was the early age of the patient and the presence of free hydrochloric acid. When the abdomen was opened, however, the appearances were much more characteristic of inflammatory rather than malignant disease. The infiltration of tissue was evidently spreading from left to right, showing no tendency to invade the stomach itself. The old scar in the stomach wall was apparently the result of an ulcer long since healed. In the pylorus itself a recent ulcer probably existed, but without actually opening it I could not absolutely prove its presence. I was unable to introduce my finger into the pylorus from the stomach cavity. The rapid disappearance of the tumour was the most remarkable instance of this phenomenon which I remember to have seen, occurring as it did within a month of operation.[2]

CASE 4. *Duodenal ulcer (?); gastric dilatation; posterior gastro-jejunostomy through the gastro-colic omentum; recovery.*—A man, aged 43 years, was admitted into the Bradford Royal Infirmary under the care of Dr. Campbell on Sept. 24th, 1901. He gave a history of "stomach trouble" of four years' standing. He said that he had "more or less constant" epigastric pain varying in severity. Pain came on about one and a half hours after food and was for a time very severe. It gradually abated but was renewed at the next meal. He only vomited occasionally and the material ejected was not very large in quantity. There had never been any hæmatemesis. He had lost three stones in weight in the past three years. On admission his condition was as follows. He was very thin and his expression was pinched and careworn. The tongue was very dirty and the breath was offensive. There was no abdominal tumour but the stomach was dilated, showing peristalsis on palpation. There was a well-marked succussion splash. The stomach held four pints easily. The contents obtained by the stomach tube were fermenting. Free hydrochloric acid was present. There was some rigidity and resistance of the abdominal wall over the pyloric region. Six weeks' medical treatment combined with lavage produced only slight improvement and on Nov. 11th Dr. Campbell transferred him to my care and three days later I opened the abdomen under ether.

The stomach was reached through the usual incision. It was considerably dilated but there was no pyloric tumour. Beyond the pylorus, however, there were some dense adhesions round the duodenum very suggestive of the presence of duodenal ulcer. As the patient was very feeble I refrained from further exploration and at once performed a posterior gastro-jejunostomy in the same manner as in the preceding cases. He recovered rather slowly from the operation. There was no vomiting after the first two hours. His pulse, however, remained small and rapid for a day or two and he seemed to lack the power of recuperation. After the first week he improved and a fortnight later got out of bed. He then weighed eight stones seven pounds. Before leaving hospital a fortnight later he weighed nine stones five pounds. He was very well and had lost his grey ashy complexion and dirty tongue.

In this case I omitted to excise the redundant gastric mucous membrane when making the anastomosis and the sequel shows the importance of this step. About a month after he left the hospital he complained of vomiting occasionally after meals and I readmitted him so as to have him under observation. The following facts disclosed themselves. He was perfectly well for a time and was quite conscious of food passing through the artificial opening. Then, without any apparent reason he found that the stomach did not empty itself after a meal. This usually occurred after an ordinary breakfast. He then had a good deal of pain and ultimately vomited, when he was at once relieved. During an attack there was a well-marked succussion splash. Sometimes he would go a week without one of these attacks, or, on the other hand, he might have them two days running. In the intervals washing out the stomach showed it to be empty, the fluid returning quite clear and not increased in quantity. He had attacks much more frequently when he took only liquid diet. He was distinctly better on solid food and when he did not drink at meals. On two occasions the vomited matter contained some blood. These observations show clearly, I think, that there was some occasional accidental blocking of the artificial opening and I think there can be little doubt that this was due to a fold of mucous membrane. Since his second stay in the hospital these attacks have become less and less frequent and are apparently ceasing altogether. He is putting on weight and looks very well.

In conclusion, I would urge a trial of this method of performing the posterior operation. It is an easy and rapid method and combines the advantages of both the anterior and posterior routes. It certainly provides most efficient drainage of the stomach even when the patient is lying on his back. On two occasions I have noted fluid passing from the stomach into the intestine immediately the clamps have been removed. I am not aware that this route has been previously used by other surgeons, but in any case I would urge a trial of it as I feel confident that it possesses great advantages. On the other hand, so far as my limited experience of it goes, I have found no objection to the method.

Bradford.

[2] This patient was seen in June, 1902. There was then a large malignant mass in the abdomen with all the accompanying signs of carcinoma. There was absence of free hydrochloric acid.

NOTE ON THE DIAGNOSTIC AND PROGNOSTIC VALUE OF THE LEUCOCYTE VARIATIONS IN ASIATIC CHOLERA.

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DURING the last six months I have made some examinations of the blood in cases of cholera in order to determine if any guidance in prognosis and treatment could be derived from the conditions met with, more especially as regards the use of transfusion. Although the cases so far examined are much too few in number to allow of any final conclusions being drawn on this large question, yet in the course of the inquiry certain variations in the leucocytes have occurred so constantly as to appear to have a diagnostic value of their own which may be worth drawing attention to.

In Table I. blood estimations in 23 cases of cholera are given and in Table II. will be found six cases of non-choleraic diarrhœa of various kinds and of such severity that the patients were admitted into the cholera observation ward as suspected cases of true cholera. These last all subsequently proved not to be cases of cholera, but they so closely resembled the specific disease clinically as to be just the class which is most difficult to diagnose from cholera in practice, and hence they serve as good controls for purposes of comparing the blood changes. In 15 of the cholera cases stools were submitted to a bacteriological examination, and in 10 of them pure cultures of comma bacilli were obtained. In the others similar bacilli were seen under the microscope, but pure cultures were not obtained owing to their being mixed with so many other varieties, the stools being fæcal in character in these cases, having been taken in a late stage of the disease. When a typical rice-water stool was obtained there was usually no difficulty in isolating comma bacilli. The cultural characters of those isolated varied greatly, as in Cunningham's well-known observations in Calcutta, but on preparing a serum

by subcutaneous inoculation of one of them into a rabbit everyone of the other varieties clumped typically with it, although a comma bacillus obtained from water failed to do so. This points to all the different varieties being specific cholera organisms, an interesting point which forms part of my larger inquiry and cannot be further dealt with here. In the first two cases of Table II. no comma bacilli could be isolated, but material for examination was not received from the other cases.

The red corpuscles and hæmoglobin.—All the patients in Table I. were Hindus or Mahomedans except the patient in Case 15 who was a Chinaman. In the first line of the table the normal figures for healthy natives of India belonging to the poorer and ill-fed classes are given, the hæmoglobin in particular being much lower than the European standard, as I pointed out several years ago, being only on the average 70 per cent. of Gowers's standard. On the other hand, the number of red corpuscles is about 5,000,000, so that the hæmoglobin value is only 0·7. In such a severe form of diarrhœa as occurs in cholera the number of the red corpuscles and the percentage of hæmoglobin both rise with the concentration of the blood and should serve as a guide to the amount of fluid lost. The estimation of the specific gravity of the blood would be a more rapid way of arriving at the same result, but it was only carried out in a few cases. In two of the cases the number of red corpuscles rose to over 8,000,000 per cubic millimetre and both patients died, but one patient out of three cases in which they reached between 7,000,000 and 8,000,000 recovered, as did one of the patients (Case 1) in Table II. On the other hand, four patients out of five cases in which they numbered 5,000,000 and under also died, while of 11 cases in which they were between 5,000,000 and 7,000,000 seven patients recovered and only five died. There does not, therefore, appear to be any constant relationship between the degree of concentration of the blood as indicated by the number of the red corpuscles and the death-rate. The hæmoglobin varied closely with the red corpuscles, the hæmoglobin value being about normal in the majority of the cases, although somewhat high in a few of them. In only one was it below normal—namely, in Case 16—and this patient had hæmorrhagic stools.

Leucocytosis.—It has long been known that leucocytosis is a well-marked condition in Asiatic cholera, while it is said to be most marked in the severest and most fatal cases. These statements are borne out by my observations, leucocytosis having been present in every case which was examined in the earlier stages—that is, within the first two days of the disease. In nine cases it was present in comparatively slight degree, less than 20,000 leucocytes per cubic millimetre, and five of these patients recovered.[1] On the other hand, out of 14 cases in which this number was exceeded 11 patients died and only three recovered, these three, however, including two out of the three cases in which over 40,000 leucocytes were found per cubic millimetre. A high degree of leucocytosis is, then, a bad prognostic sign and a slight degree a good one, yet a very high degree is not incompatible with recovery. The constancy of the occurrence of leucocytosis in cholera is of importance in distinguishing it from some forms of acute diarrhœa in which it is absent, as in most of the cases in Table II. It is not, however, of absolute value, as leucocytosis occurs in ptomaine poisoning and sometimes in cases of acute dysentery beginning with severe diarrhœa, Cases 3 and 1 in Table II. being cases in point, and it is just these which for a time present the greatest difficulty in diagnosis.

The differential leucocyte count in cholera.—While working recently at the blood changes in plague I found in some of them a peculiar form of leucocytosis characterised by an unusually large proportion of lymphocytes in proportion to the degree of total increase of the white corpuscles. Thus, with a total count of from 20,000 to 60,000 white corpuscles, instead of finding from 80 to 90 per cent. of polynuclear cells and only about 10 per cent. of lymphocytes, the polynuclear cells showed little or no increase above the normal percentage, but the lymphocytes formed from 20 to 30 per cent. of the whole, a condition which I have not met with in the leucocytosis of inflammatory conditions or in such diseases as pneumonia or cerebro-spinal fever. Unfortunately, neither a marked increase in the total leucocyte count nor this peculiar proportion of the different kinds occurs at all constantly in plague, so that I have not found these changes of much practical value in differentiating plague from other diseases, as a negative result is of no value in excluding plague, although I think the finding of the condition mentioned may be of value in confirming such a diagnosis. These observations led me to make similar differential counts in cholera cases, 500 corpuscles always being counted, with the result that much more constant changes of a different nature were met with, which I have found to have great diagnostic value in the limited series of cases which have so far been examined. In cholera the percentage of polynuclear cells is increased to somewhere about 80 per cent., but it seldom rises much above that point. The lymphocytes are very markedly decreased, having been under 10 per cent. in 13 out of 17 cases examined on the first or second day of the disease. On the other hand, the large mononuclear cells are not only decreased proportionally with the decrease in the lymphocytes, but are usually increased above the normal percentage as well as absolutely. The result of these two coincident changes is that the large mononuclear cells usually outnumber the lymphocytes often to the extent of two to one, instead of being in the normal proportion of one to five. This peculiar change occurring in a leucocytosis I have not met with in any other disease than cholera. Moreover, the increased percentage of the large mononuclear cells becomes more marked as the disease progresses, especially in fatal cases. The marked character of this change is still better seen by taking the total number of the different forms of leucocytes, as shown in columns 15 to 17 of Table I. The polynuclear cells show a great increase in proportion to the degree of leucocytosis. The lymphocytes show no proportional increase, being actually below the normal in many cases and only showing a comparatively slight increase in those cases which in the leucocytosis is of a very marked degree. On the contrary, the large mononuclear cells show an extraordinary increase, being not infrequently more than 10 times the normal number. Case 12, in which no leucocytosis was present when examined on the fourth day, was one of convalescence from cholera in a malarial subject with marked anæmia, but even here the percentage of large mononuclear cells is very high and the total number is double the normal. The constancy of this decrease of the lymphocytes and great increase of the large mononuclear cells in this series of cholera cases is very remarkable and is in marked contrast with the cases of non-choleraic diarrhœa in Table II., for in not one of these last is either the percentage or the total number of large mononuclear cells increased above the normal limits in spite of leucocytosis being present in two of the cases.

It will be advisable to mention here the nature of the cases in Table II. in which all of the patients were admitted into the cholera observation ward as possibly suffering from cholera. The first two patients were sent by the port medical officer as being suspected cases of cholera and were examined by me very shortly after admission, when the subject of Case 1 in particular presented the general aspect of a patient suffering from cholera. The higher number of red corpuscles and the percentage of hæmoglobin in Case 1 were equal to those met with in severe cases of cholera and a slight degree of leucocytosis was present. The differential leucocyte count, however, of both cases failed to show the increase of the large mononuclear cells, which at that time had been found in 17 consecutive cases of cholera, and I thought that I had met with exceptions to the general rule. On the next day it appeared that the patients were suffering from very acute attacks of dysentery and they were removed from the cholera observation ward. In Case 3 the patient was taken ill 10 hours after a meal at a Bengali hotel and was admitted soon after as a case of cholera. He had profuse diarrhœa and sickness, but all the stools were coloured brown and were never typical of cholera and he made a good recovery, the physician in charge subsequently coming to the conclusion (without knowing the result of the blood examination) that the case was one of ptomaine poisoning and not cholera. Case 4 was similar to the last, only it proved fatal, but no history could be obtained and unfortunately the stools of these last two patients were not sent for bacteriological examination. It is therefore just possible that they may have been cholera cases which did not show the blood changes described in this paper, but in the absence of exact proof I can only accept

[1] In one of the fatal cases granular kidneys were found. This is of interest in connexion with the fact that in 70 post-mortem examinations on cholera cases which I analysed recently I found granular kidneys to be much more frequent than they were in the cases of those dying from other commoner diseases, showing that if a patient had granular kidneys there was very little chance of his surviving an attack of cholera.

PROFESSOR A. E. WRIGHT'S ARTICLE ON THE RESULTS WHIC

TABLE II.—CRITICAL EXAMINATION OF THE

Serial number	Group of statistics to which the criticisms refer	I. Examination of the system of enumeration upon which the statistics are based.		II. Examination of the statistics from the point of view of the comparability of the inoculated and uninoculated groups.				III. Examination of the statistics from the point of view of the trustworthiness of the diagnosis of typhoid fever which was arrived at.		Exam
		A	B	A			B	A	B	
		What was the system adopted in the enumeration of the inoculated and uninoculated respectively?	How are the statistical results affected by the facts set forth under A?	1. Was there any important difference between the inoculated and uninoculated from the point of view of their average age?	2. Was there any important difference between the inoculated and uninoculated from the point of view of their general conditions of life, exposure to infection, &c.?	3. Were the inoculated and uninoculated exposed to infection for a similar period?	How are the statistical results affected by the facts set down under A 1, 2, and 3?	By whom, and under what circumstances, was the diagnosis arrived at?	How are the statistical results affected by the facts set down under A?	1. What w evidence which pati adjudg be inocul uninocu
1	Nurses and attendants, Barnsley Asylum. Mard (June, 1898)	Nominal rolls were made of the inoculated. The number of uninoculated was arrived at by subtraction of the inoculated from the total of staff.	—	No.	The inoculated were more exposed to infection, the nursing of the sick and the laundry work being committed exclusively to the inoculated.	Yes.	They are unduly favourable to the uninoculated.	Medical officers of the asylum. The fact that a severe epidemic of typhoid fever was in progress is an external circumstance which weighs in favour of the diagnosis.	—	*Vide* und
2	Inoculated regiments and other units of the British army in India, 1890.	Nominal rolls were made of the inoculated. The number of uninoculated was arrived at by subtracting the inoculated from the total strength (in most cases from the average yearly strength) of the unit.	Where the strength of uninoculated was arrived at by subtracting the actual number of inoculated from the average yearly strength, this would introduce a certain inaccuracy which may have operated in favour of either group.	The inoculated would on the average be younger than the uninoculated as efforts were made to inoculate, in particular, all the younger men.	It may be assumed that there was not.	Yes; for almost the same period, almost all the inoculations having been completed by the beginning of February, 1890.	The differences adverted to under A 1 and A 3 would to some extent compensate each other.	Medical officers of the army, but the diagnosis would be complicated by prevalence of malaria and other forms of tropical fever.	Errors in diagnosis occurring, as it may be assumed that they would, in a similar percentage of inoculated and uninoculated cases, would not vitiate the general result, though they would tend to cover up any differences between inoculated and uninoculated. *Vide* also *infra* under 7.	Records of lations were upon the history and from patients.
3	14th Hussars, October, 1889, to October, 1891, at Meerut, India.	Probably as in 2 *supra*.	As in 2 *supra*.	As in 2 *supra*.	As in 2 *supra*.	Yes; the inoculations having been undertaken in England the period of exposure was in each case exactly the same.	—	As in 2 *supra*.	As in 2 *supra*.	As in 2 *s*
4	Garrison of Lady smith, November, 1899, to March, 1900.	Not known.	—	"	Presumably no, inasmuch as the inoculated belonged to many different units, and each of these contained both inoculated and uninoculated men.	Yes; the inoculations had all been completed before the commencement of the siege.	—	Medical officers and attached civil surgeons of the army working under difficulties.	..	Not know *vide* und *infra*.
5	Garrison of Egypt and Cyprus, 1900.	Number of inoculated is represented to be number inoculated since rendering previous returns. Number of uninoculated appears to have been arrived at by subtracting number of inoculated, arrived at as above, from total average strength of garrison.	The statistical results are unduly favourable to the uninoculated. For there were reckoned as uninoculated a balance of 234 men (11th Hussars) inoculated in India in 1899 and a balance of 463 men inoculated in Egypt in 1899. There were no cases of typhoid in either of these groups.	"	As in 2 *supra*.	No data are available.	If inoculations were not all completed early in the year there would be an error in favour of the inoculated to set off against the fallacies adverted to in I. A and II. A.	As in 2 *supra*.	..	As in 2 *s*
6	Garrison of India, 1900.	Number of inoculated was arrived at by adding the number of inoculated reported from the separate stations. The numbers of uninoculated in some cases are actuals and in other cases numbers arrived at by subtracting the inoculated from the average yearly strength of the unit.	In some cases the numbers of the inoculated men have been doubled by the same men being reported as inoculated from two separate stations. It is estimated that the total number of inoculated may possibly be wrong by at most "some hundreds."	"	..	In the case of some at least of the 2246 men inoculated in 1900 the period of exposure after inoculation must have been less than a complete year.	As in 2 *supra*.	"	..	..
7	Patients in Tin Town Hospital, Ladysmith, South Africa.	No data. It is not stated whether the patients were registered respectively as inoculated or as uninoculated, or whether a special record was made only in the case of inoculated patients.	If the system was to make a special record only in the case of an inoculated patient, the accidental omission of such a record would result in the patient being classed among the uninoculated.	No data.	—	—	—	The case mortality (1 in 53) set down as the case mortality of the uninoculated patients is suspiciously low for a typhoid case mortality. The case mortality of the inoculated (1 in 15) is in accordance with the general experience among the inoculated in South Africa. *Vide* also hereafter under VIII.	The statistics would be vitiated if fevers less fatal than typhoid were diagnosed as typhoid among the uninoculated, and no such errors were committed in case of the inoculated.	No data su
8	Patients in Stationary Hospital, Harrismith, South Africa.	The numbers of inoculated and uninoculated were controlled by a triple check.		"	—	—	—	Medical officers of army and attached civil surgeons. *Vide* also further on under V.	As in 2 *supra*.	Inquiries fr patients, b *ante* under
9	Patients in Portland Hospital, South Africa, 1900.	No data.	..	"	—	—	—	Civil medical officers of Portland Hospital.	"	Inquiries patient
10	Patients in Irish Hospital, South Africa, 1900.	"	..	"	—	—	—	Civil medical officers of the Irish Hospital.	"	As in 9 *su*
11	Patients in Scottish Red Cross Hospital, South Africa, 1900.	"	..	"	—	—	—	Civil medical officers of the Scottish Red Cross Hospital.	"	"
12	Patients in Imperial Yeomanry Hospitals, South Africa, 1900.	"	..	"	—	—	—	Civil medical officers of Imperial Yeomanry Hospital.	"	"
13	Patients in a variety of military hospitals, South Africa, 1900-1902.	For the most part entries with regard to inoculation were made only in the case of the inoculated, blanks being left in the register in the case of the uninoculated. Patients transferred from one hospital to another have been excluded from the statistics.	*Vide* 7 *supra*.	"	—	—	—	Medical officers of army and attached civil surgeons, but diagnosis would be complicated by prevalence of other continuous fevers and dysentery, &c.	As in 2 *supra*.	Statements patients. M history were not able in Africa. Al *ante* under regard to g practice in African pitals.

CH HAVE BEEN OBTAINED BY ANTI-TYPHOID INOCULATION.

HE STATISTICS EMBODIED IN TABLE I.

IV. Examination of the statistics from the point of view of the trustworthiness of the classification of the sick into inoculated and uninoculated respectively.				V. Examination of the statistics from the point of the trustworthiness of the respective case mortalities amongst the inoculated and uninoculated.	VI. Examination of the statistics from the point of view of the inclusion in the statistics of the inoculated cases infected before protection had been established.		VII. Examination of the question as to whether the statistics throw any light on the question of duration of the protection conferred.	VIII. Examination of the statistics from the point of view of the general accuracy of the work of compilation.
A			B		A	B		
1	2 Would any of the uninoculated under the system described under A 1 be included among the inoculated, and would those included be a fair average sample of the inoculated from the point of view of their resistance to typhoid?	3 Would any of the inoculated under the system described under A 1 be included among the uninoculated, and would those included be a fair sample of the inoculated from the point of view of their resistance to typhoid?	How are the statistical results affected by the facts set down under A 1, 2, and 3?	Are there any special circumstances which ought to be taken into consideration in connexion with the case mortality of the inoculated?	Did any case of typhoid occur in the inoculated within a short interval after inoculation?	How are the statistics of incidence and case mortality affected by the facts set down under A?	Can any inference be drawn from the records as to the duration of the protection?	Have any facts come to light which deserve to be considered in connexion with the question of the trustworthiness of the statistics?
under 1 A.	No uninoculated would be included among the inoculated.	No inoculated would be included among the uninoculated.		No.	No.	—	An agglutinative reaction was obtained two years afterwards in four out of nine inoculated who were examined. Fouler-ton: THE LANCET, June 2nd, 1900, p. 1581.	
s of inocu- s which entered he medical r sheets inquiries n the ta.	It is possible that in isolated cases errors may have crept in.	It is possible that in isolated cases errors may have crept in.	—	The possibility that very light attacks of typhoid may not have been recognised as such must be borne in mind. The fact set down hereafter under VI. A and B must also be taken into consideration as the case mortality may be unfavourably influenced where patients are inoculated in the incubation period of the disease.	Five cases, two of these fatal cases, occurred among the inoculated at Lucknow within 19 days after inoculation. One case occurred among the inoculated at Agra within eight days after inoculation.	By the occurrence of these cases the incidence-rate of inoculated was increased from 0·84 per cent. to 0·98 per cent. and the death-rate from 0·15 to 0·2.	No.	*Vide* under I. A and B.
2 *supra*.	As in 2 *supra*.	As in 2 *supra*.	—	*Vide* 2 *supra*.	No.	—	—	—
own, but under 13	*Vide* under 13 *infra*, also *vide* hereafter under VIII.	*Vide* under 13 *infra*.	*Vide* under 13 *infra*.	If we correct the errors adverted to hereafter under VIII., the case mortality of the inoculated would be distinctly lower than that of uninoculated.	,,	,,	,,	Of the two deaths set down as from typhoid in inoculated officers one was due to a casualty and the other was not inoculated with anti-typhoid vaccine. Among the uninoculated officers a minimum of *10* deaths, instead of 5 as recorded, occurred.
2 *supra*.	As in 2 *supra*.	*Vide* under I. B.	They are rendered unduly favourable to the uninoculated.	As in 3 *supra*, but *vide* hereafter under VI. A and B.	The only case which occurred among the inoculated was a fatal case in a man inoculated on Dec. 8th, 1899, and admitted to hospital on Jan. 9th, 1900.	If it had not been for this case the incidence of typhoid would have been *nil* in the inoculated numbering, probably, over 1000.	The fact that no case of typhoid occurred in those inoculated in the previous year seems to indicate a continuance of the protection.	The number of 228 inoculated in the West Kent Regiment, which is given as representing men newly inoculated, is identical with the number of inoculated reported in the previous year from that Regiment.
,,	,,	As in 2 *supra*.	—	As in 3 *supra*, but *vide* hereafter under VI. A and B.	In the case of three of the inoculated who contracted typhoid the attack supervened respectively 13, 15, and 24 days after inoculation. The first of these cases terminated fatally.	The incidence among the inoculated is increased from 0·82 to 0·87 per cent., the death-rate from 0·13 to 0·14, and the case mortality from 1 in 7 to 1 in 6·5	Of the 52 cases of typhoid which occurred in the inoculated in 1900 21 occurred among the 2250 inoculated in 1900 and 31 in the 3750 inoculated in 1899. These figures suggest that the effect of inoculation persists for more than a year.	In re probable inaccuracies in the enumerations, *vide* I. A and B.
supplied.	—	—	—	—	—	—	No data supplied.	It may be noted that the case mortality of the uninoculated patients who came under Dr. Melville's observation does not conform with the case mortality of the total 805 typhoid patients treated in this hospital. This case mortality was, according to information received from the principal medical officer (Major Westcott, R.A.M.C.), 18·6 per cent.
from the , but *vide* der I. A.	No; all doubtful cases were omitted and no patients were admitted moribund.	No; *vide* ante under IV. A 2.	—	Major C. Birt verified the diagnosis by post-mortem examination in every fatal case.	—	—	—	—
es from nts.	Presumably as in 8 *supra*.	Presumably as in 8 *supra*.	—	*Vide* 2 *supra* and 13 *infra*	—	—	,,	—
supra.	,,	,,	—	,,	—	—	,,	—
,,	,,	,,	—	,,	—	—	,,	—
,,	,,	,,	—	,,	—	—	,,	—
ta of the . Medical sheets ot avail- South Also *vide* er I. A in o general in South n hos-	No data available for determination of the question. It is to be noted as holding true generally in connexion with South Africa that patients who had been vaccinated against small-pox often misdescribed themselves as having undergone anti-typhoid inoculation. Occasionally such misdescription was made intentionally with the idea that inoculation might be enforced upon the uninoculated. Patients thus misdescribing themselves would	No data available for the determination of this question. It may be noted as holding true generally in connexion with South Africa that patients brought into hospital moribund may in some instances in the absence of data have been erroneously included among the uninoculated. Moribund patients would not be a fair representative sample of inoculated patients. Again, some inoculated may have been included in the uninoculated owing to an	The statistics would not be vitiated by the erroneous classification of a certain proportion of inoculated and uninoculated patients provided that these misclassified patients were in each case typical samples of their class. What would result from such inclusion would be merely a certain covering up of any difference between their respective classes. The misclassification of a proportion of the moribund patients belonging to the inoculated would if it	*Vide* under 2 *supra*. The patients consisted of both officers and men. The former may perhaps be assumed to have a somewhat better chance of recovery. The statistics are not vitiated by this fact. For in each class of patients the case mortality was less in the inoculated than in the uninoculated group.				The report which embodies the statistics affords evidence of conscientious compilation and of the exercise of a critical spirit.

12	Patients in Scottish Red Cross Hospital, South Africa, 1900.	—	—	—	—	—	—	Civil medical officers of the Scottish Red Cross Hospital.	,,	,,
13	Patients in Imperial Yeomanry Hospital, Deelfontein, South Africa, 1900.	—	—	—	—	—	—	Civil medical officers of Imperial Yeomanry Hospital.	,,	,,
14	Patients in Portland Hospital, South Africa, 1900.	—	—	—	—	—	—	Medical officers of army and attached civil surgeons, but diagnosis would be complicated by prevalence of other continuous fevers and dysentery, &c.	As in 2 *supra*.	Statements of patients. Medical history ... were not ... able in ... Africa. Also *ante* under ... regard to ge... practice in ... African ... pitals.
15	Staff of Portland Hospital, South Africa, 1900.	Presumably nominal rolls.	—	,,	As in 2 *supra*.	No data.	—	As in 9 *supra*. *Vide* also under 15 *supra*.	,,	Presuma... nominal ro...
16	Staff of Imperial Yeomanry Hospital, Deelfontein, South Africa, 1900.	,,	—	,,	,,	,,	—	As in 12 *supra*. *Vide* also 15 *supra*.	,,	,,
16	Staff of Imperial Yeomanry Hospital at Pretoria, South Africa, 1900.	Nominal rolls were furnished with statistics.	—	,,	,,	Yes.	—	,,	,,	,,
17	Staffs of Nos. 8, 9, 10 General Hospitals, Bloemfontein, South Africa, 1900.	As in 16 *supra*.	—	No.	No; the condition of the three hospitals were similar and the incidence-rate among the uninoculated members of the staffs was in No. 8 40 per cent., in No. 9 28 per cent., and in No. 10 30 per cent.	,,	—	As in 4 *supra*.	,,	,,
18	Staff of the Scottish Red Cross Hospital, South Africa, 1900.	The uninoculated in the second section probably numbered less than 12.	—	No data.	As in 2 *supra*.	No data.	—	As in 11 *supra*.	,,	,,
19	4th Battalion, Manchester Regiment, South Africa, 1900-1901.	As in 14 *supra*.	—	As in 2 *supra*.	No; the regiment remained together.	Yes.	—	Lieutenant J. W. West, R.A.M.C., the medical officer who had carried out the inoculation and who had remained in charge of the regiment.	,,	Presumab... nominal ro...
20	City Imperial Volunteers, South Africa, 1900.	,,	—	,,	As in 2 *supra*.	,,	—	As in 8 *supra*.	,,	No data.
21	Patients in Richmond Asylum, Dublin, 1900.	Nominal rolls were made of the patients as they were inoculated in a series of separate sittings. From these rolls and from list of cases and dates of attack the average strength of the inoculated and uninoculated was calculated for the period covered by the epidemic.	—	No data. The average age of the nurses who were counted in among the uninoculated may probably have been less than that of the patients.	The external conditions of inoculated and uninoculated were essentially similar. The nurses (who were all included in the uninoculated) would, however, though living among the insane inmates, avoid risks which would be incurred by these last.	Reckoned by the incidence of cases among the uninoculated the risk of coming in contact with infection was greater after the date at which the number of inoculated reached the number taken as the average strength than it was before this date.	The probable difference in age between one section of the uninoculated (the nurses) and the inoculated patients would tend to vitiate the statistics in favour of the inoculated. Against this may be set off the facts recorded in A 2 and 3.	As in 1 *supra*.	—	Nominal ro...
22	Officers invalided from South Africa. (First Series.)	The inoculated and uninoculated represent two chance groups marked off by the accident of invaliding from the large body of inoculated and uninoculated officers who saw service in South Africa.	The statistics are vitiated in favour of the uninoculated for the case mortality of the inoculated is, as is shown by the statistics embodied in Table I., lower in the inoculated than in the uninoculated.	No data are supplied, but *vide infra* under 23.	As in 2 *supra*.	The average period of service in Africa of each group was not ascertained.	The statistics are vitiated in favour of the uninoculated by the difference of age between the inoculated and uninoculated.	The diagnoses upon which the statistics are based are the diagnoses of medical officers as reported by the patients.	—	The statemen... the patient...
23	Officers invalided from South Africa. (Second Series.)	As in 22 *supra*.	As in 22 *supra*.	The average age of the inoculated was 29·4 years; that of the uninoculated 30·6 years.	,,	As in 22 *supra*.	As in 22 *supra*. But this applies to the statistical data in the body of Table I., not to the comparison in the column of supplementary facts.	As in 22 *supra*.	—	,,
24	9th Hussars, South Africa.	Nominal rolls.	—	As in 2 *supra*.	As in 19 *supra*.	Yes.	—	As in 2 *supra*.	—	Nominal ro...

"	"	"	—	"	—	—	"	—
"	"	"	—	"	—	—	"	
statements of the patients. Medical history sheets were not available in South Africa. Also *vide ante* under I. A in regard to general practice in South African hospitals.	No data available for determination of the question. It is to be noted as holding true generally in connexion with South Africa that patients who had been vaccinated against smallpox often misdescribed themselves as having undergone anti-typhoid inoculation. Occasionally such misdescription was made intentionally with the idea that inoculation might be enforced upon the uninoculated. Patients thus misdescribing themselves would from the point of view of resistance to typhoid be a fair average sample of uninoculated patients.	No data available for the determination of this question. It may be noted as holding true generally in connexion with South Africa that patients brought into hospital moribund may in some instances in the absence of data have been erroneously included among the uninoculated. Moribund patients would not be a fair representative sample of inoculated patients. Again, some inoculated may have been included in the uninoculated owing to an omission to record the fact of inoculation. These patients would from the point of view of their resistance to typhoid be a fair average sample of inoculated patients.	The statistics would not be vitiated by the erroneous classification of a certain proportion of inoculated and uninoculated patients provided that these misclassified patients were in each case typical samples of their class. What would result from such inclusion would be merely a certain covering up of any difference between their respective classes. The misclassification of a proportion of the moribund patients belonging to the inoculated would if it occurred, *pro tanto*, vitiate the statistics in favour of the inoculated. It may be remarked that in a case of typhoid fever the number of patients admitted into hospital moribund would probably be very small.	*Vide* under 2 *supra*. The patients consisted of both officers and men. The former may perhaps be assumed to have a somewhat better chance of recovery. The statistics are not vitiated by this fact. For in each class of patients the case mortality was less in the inoculated than in the uninoculated group.				The report which embodies the statistics affords evidence of conscientious compilation and of the exercise of a critical spirit.
Presumably nominal rolls.	As in 1 *supra*.	As in 1 *supra*.	—	*Vide* under 3 *supra*.	No data.	—	"	
"	"	"	—	"	"	—	"	
"	"	"	—	"	No.	—	"	
"	"	"	—	"	Four cases, all non-fatal, occurred 3-4 weeks after inoculation.	—	"	
"	"	"	—	"	No data.	—	"	
Presumably nominal rolls.	"	"	—	"	"	—	"	
No data.	—	—	—	"	"	—	"	
Nominal rolls.	As in 1 *supra*.	As in 1 *supra*, but *vide* hereafter under VI. A and B.	—	—	Of the total of six cases which developed in the inoculated five occurred within 12 days after inoculation. One of these ended fatally.	If these cases had not occurred the comparative incidence of typhoid in the inoculated groups would have been 30— in lieu of six— times less than in the uninoculated.	"	—
The statements of the patients.	"	—	—	—	One twice inoculated officer contracted typhoid within a month after landing in South Africa.	—	A table in Col. Crombie's paper may be taken as indicating that the effect of inoculation diminishes after the expiration of five months.	
"	"	"	—	—	No data.	—	—	
Nominal rolls.	As in 1 *supra*.	As in 1 *supra*.	—	As in 2 *supra*	No.	—	—	—

TABLE I.—CASES OF ASIATIC CHOLERA.

(1) Number of case.	(2) Caste.	(3) Sex.	(4) Age.	(5) Result.	(6) Day of disease.	(7) Hæmoglobin.	(8) Red corpuscles.	(9) White corpuscles.	(10) Ratio of white to red corpuscles.	(11) Percentages. Polynuclear cells.	(12) Lymphocytes.	(13) Large mononuclear cells.	(14) Eosinophiles.	(15) Total number per cubic millimetre. Polynuclear cells.	(16) Lymphocytes.	(17) Large mononuclear cells.
Normal for natives			...	...	...	70	5,000,000	7,500	1-666	62·0	25·0	6·0	1·0	5,100	1,875	450
1	H.	M.	30	D.		130	7,910,000	26,000	1-304	79·6	6·2	12·2	1·4	20,696	1,768	3,172
					3		8,200,000	24,000	1-335	82·2	4·2	12·6	0·4	20,287	1,029	3,086
2	H.	F.	50	D.	1	107	6,180,000	33,000	1-187	83·0	5·2	11·4	0·4	26,456	1,716	4,752
3	H.	M.	18	D.	3	107	4,500,000	19,000	1-237	80·2	6·8	12·8	0·2	15,638	892	2,432
4	H.	M.	45	R.	2	114	6,200,000	15,000	1-413	87·0	4·8	8·2	—	13 050	720	1,230
5	H.	F.	28	D.	2	—	3,160,000	26,000	1-122	85·2	6·4	7·8	0·6	22,152	1,664	2,028
6	H.	M.	36	R.	1	109	6,790,000	24,000	1-283	69·0	11·8	17·4	1·8	16,560	2,832	4,176
7	M	M.	28	R.	2	91	5,100 000	18,750	1-273	72·8	15·2	11·2	0·8	13,650	2,848	2 099
8	H.	M.	32	D.	1	85	4,890,000	15,250	1-321	79·2	7·4	13·4	—	13,278	1,248	2,043
9	H.	M.	30	D.	3	74	5,200,000	30,750	1-161	63·8	16·8	19·0	0·4	19.618	5,116	5,842
10	H.	M.	16	D.	5	81	5,000,000	15,750	1-318	80·8	8·6	10·2	0·4	12 726	1 354	1,606
11	H.	F.	30	R.	4	97	6,810,000	12,250	1-555	79·4	10·2	9·8	0·6	9,726	1,249	1,200
12	H.	M.	33	R.	4	60	2,520,000	2,250	1-1120	38·8	23·6	37·6	—	873	531	840
13	H.	M.	30	D.	3	120	7,690,000	30,000	1-256	76·8	10·4	12·8	—	23,040	3,120	3,840
14	M.	M.	35	R.	2	114	6,070,000	10,000	1-597	85·4	7·4	7·0	0·2	8,540	740	700
					7	102	6,070,000	4,000	1-1517	49·6	26·0	22·8	1·6	1 984	1,040	912
15	C.	M.	35	D.	2	102	6,430,000	16,500	1-390	76·2	8·8	15·0	—	12,573	1,452	2,475
					6	99	6,390,000	13,500	1-473	82·4	8·0	9·6	—	11.124	1 080	1.296
16	H.	M.	30	D.	—	73	5,790,000	30,250	1-191	78·8	7·0	14·0	0·2	23,837	2,117	4 235
	M.	M.	35	D.	—	112	6,190,000	25,750	1-210	64·0	15·0	21·0	—	16,480	3,862	5 407
	H.	M.	40	D.	2	103	5,120,000	28,500	1-180	76·4	10·0	13·6	—	21,774	2,850	3,376
	'	M.	35	R.	2	111	7,270,000	53,250	1-136	88·0	4·0	8·0	—	46,860	2,130	4,260
					4	107	6,560,000	27,250	1-240	87·4	3·8	8·8	—	23,816	1,035	2,398
					9	103	6,990,000	14,250	1-490	79·6	8·8	11·2	0·4	11,343	1,254	1,596
	H.	M.	33	D.	3	109	6,840,000	33,000	1-205	70·0	9·2	10·2	0·6	23,100	3,036	3,366
	H.	M.	30	R.	1	111	6,330,000	43,000	1-148	84·8	5·2	10·0	—	36,464	2,236	4,300
					9	102	5,640,000	18,000	1-313	77·0	9·6	13·0	0·4	13,860	1,728	2,340
	H.	M.	25	D.	1	116	8,420,000	55,000	1-153	78·2	8·2	13·4	0·2	43,010	4 510	7,370
	H.	M.	22	D.	2	94	6,550,000	37,000	1-177	83·4	6·8	9·6	0·2	30,858	2,516	3,552

TABLE II.—CASES OF ACUTE DIARRHŒA OTHER THAN CHOLERA.

(1) ...er of case.	(2) Caste.	(3) Sex.	(4) Age.	(5) Result.	(6) Day of disease.	(7) Hæmoglobin.	(8) Red corpuscles.	(9) White corpuscles.	(10) Ratio of white to red corpuscles.	(11) Percentages. Polynuclear cells.	(12) Lymphocytes.	(13) Large mononuclear cells.	(14) Eosinophiles.	(15) Total number per cubic millimetre. Polynuclear cells.	(16) Lymphocytes.	(17) Large mononuclear cells.
1	M.	M.	30	R.	6	105	7,420,000	12,500	1-593	87·0	9·0	4·0	—	10,875	1.125	500
2	M.	M.	28	R.	6	90	5,240,000	9,000	1-582	86·8	10·4	2·8	—	7,812	936	252
3	H.	M.	45	R.	1	92	6,190 000	20,500	1-202	93·8	4·0	2·2	—	19,229	820	451
	H.	M.	11	D.	1	87	5.930,000	8,000	1-741	81·2	12·4	6·2	0·2	6,496	992	496
5	H.	F.	26	R.	1	—	3,280 000	3,750	1-857	58·6	32·8	14·4	1·2	2,197	1.230	540
6	H.	M.	50	R.	1	83	4,610 000	7,750	1-593	61·2	31·2	4·4	3·2	4 723	2,418	341

the conclusion of Captain Delany, M.B., I.M.S., that clinically they were not cholera cases, and I may also take this opportunity of thanking that officer for kindly allowing me to examine his cases. The patient in Case 5 was a woman who while suffering from malarial fever took two pills, after which she was violently purged 11 times and also suffered from vomiting. She was admitted into the cholera observation ward and subsequently was transferred to the general ward, where she had malignant tertian fever with ring-shaped parasites. Her blood while suffering from the diarrhœa showed the typical low total leucocyte count, with high percentage of large mononuclear cells, which is characteristic of malaria, together with a high percentage of lymphocytes, illustrating well the difference between the high large mononuclear counts of cholera and malaria respectively. Case 6 was another case of ptomaine poisoning following the consumption of prawn curry late at night, the patient having also been admitted into the cholera observation ward, but she subsequently proved not to be suffering from cholera. This series of cases of non-choleraic diarrhœa is a very small one, but they form the whole of the cases admitted as suspicious of cholera during the same period as the true cholera cases in Table I occurred, came under observation in the Medical College Hospital, and hence are just the cases which it is most difficult to differentiate from cholera. The fact that none of them show the changes met with in all the cholera cases strongly supports the diagnostic value of the peculiar leucocyte count of cholera described above, although it will be necessary to examine a much larger series of cases before the exact limitations of this new method of diagnosing cholera can be established. This leucocyte test has at least the great advantage that it can be carried out within an hour or so with only the aid of a slide, a simple stain, and an ordinary high-power microscope (a one-sixth inch lens); whereas the bacteriological diagnosis takes a day or two with the aid of a properly-equipped laboratory, while, owing to the great variability of cholera comma bacilli, both in their power of liquefying gelatin and in the presence or absence of the indol reaction, considerable experience is required for its safe application, including, in order to be quite certain, the carrying out of the serum test.

The prognostic value of the leucocyte variations in cholera.—If the leucocyte variations in cholera above described are of a specific nature then it might be expected that their degree might bear some relationship to the severity and mortality of the disease. The following data are of interest in this connexion. We have already seen that when the leucocytosis is of less degree, with a correspondingly low total polynuclear count, the prognosis is comparatively good. In the case of the leucocytes, on the contrary, we have seen that in cholera a very low percentage and a comparatively low total count is the characteristic feature. On classifying the cases according to the percentage of lymphocytes met with we find that out of 16 cases in which less than 10 per cent. were found no less than 12 ended fatally, while out of seven cases in which over 10 per cent. were present four patients recovered and only three died. On the other hand, there is no such relationship between the total number of lymphocytes per cubic millimetre and the mortality, which is what might have been expected, as the tendency of the high degree of leucocytosis in fatal cases to increase the number of lymphocytes is counteracted by the opposite tendency of the low percentage of lymphocytes in severe cases. Lastly, on turning to the large mononuclear corpuscles we find that out of six cases in which under 10 per cent. were found four patients recovered and only two died, while, on the contrary, out of 15 cases in which over 10 per cent. of large mononuclear cells were present only three patients recovered and 12 died. The total number of large mononuclear cells per cubic millimetre shows a similar relationship, as in this case the favourable low degree of leucocytosis coincides with the equally favourable low percentage in reducing the total number of these corpuscles and *vice versâ*. Thus we find that recovery took place in no less than four out of five cases in which the total number of large mononuclear cells was less than 2000 per cubic millimetre, while out of 18 cases in which over 2000 were present 14 patients died and only four recovered. We therefore conclude that there is a definite relationship between the decrease of the percentage and the total number of large mononuclear cells and the severity of the disease—a relationship of the very peculiar leucocyte changes described which it would be difficult to explain on any other ground than that these changes are of a specific nature. This fact, taken with the constancy of these changes in the consecutive series of cases examined and their absence in cases of non-choleraic diarrhœa, encourage one to believe that a larger experience will confirm the conclusions derived from a study of the data recorded in the tables of this paper—namely, that the leucocyte changes described above have a considerable value as a simple and rapidly applied guide in both the diagnosis and prognosis of cholera.

Calcutta.

ENVIRONMENT AS A CAUSE OF AGUE.

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THE proceedings of the Malaria Congress recently held at Nagpur, Central India, under the presidency of Colonel A. Scott Reid, I.M.S., were full of interest and have led me once again to invite the attention of the profession to meteorological environment as a probable cause of those cases of malarial fever in which parasites cannot be discovered in the blood. In a paper read at the congress Dr. Stephens and Dr. Christophers stated that cases occurred, with fever clinically identical with malarial fever, in which parasites could not be found in the blood, after repeated search, before quinine had been given. It was also stated that in large numbers of cases of fever with enlarged spleens examined in Calcutta, the authors had seldom found the parasite in peripheral blood, although pigment was sometimes obtained by spleen puncture. Instances of failure to find the parasite in undoubted cases of malarial fever were narrated and every speaker at the congress affirmed the malarial nature of the cases of chronic fever with enlarged spleen. It would appear from this that under the term "malarial fever," as it is understood at present, are included two clinically identical, yet etiologically distinct, fevers which for convenience may be referred to here as (1) parasitic malarial fever and (2) non-parasitic malarial fever. The diagnosis of cases of the first class would, of course, rest on the recognition of the parasite in the blood by experienced observers, for, as Manson says, "negative results by amateurs are valueless, and a positive result is not much more to be relied on."[1] The second class would include all fevers clinically identical with malarial fever in which parasites cannot be discovered in the blood. It is to fevers of the latter class alone that I refer in this paper. Such fevers are, in my opinion, obviously and indisputably due to the meteorological environment under which they arise. By this environment I mean the hot, moist, stagnant atmosphere under which they become most prevalent and which was for many years considered a sufficient explanation of their cause. First, as regards this environment it is obvious that it may be of a higher degree of intensity in some places than in others, in some years than in others, and in some seasons than in others, but I hope to demonstrate that the inevitable effect of exposure to such environment is to produce an intermittent excess of water in the blood. This intermittent excess of water in the blood will be seen to afford a clear explanation of the intermittent pyrexia, the anæmia, the melanæmia, the enlargement of the spleen, and the other conditions characteristic of malaria.

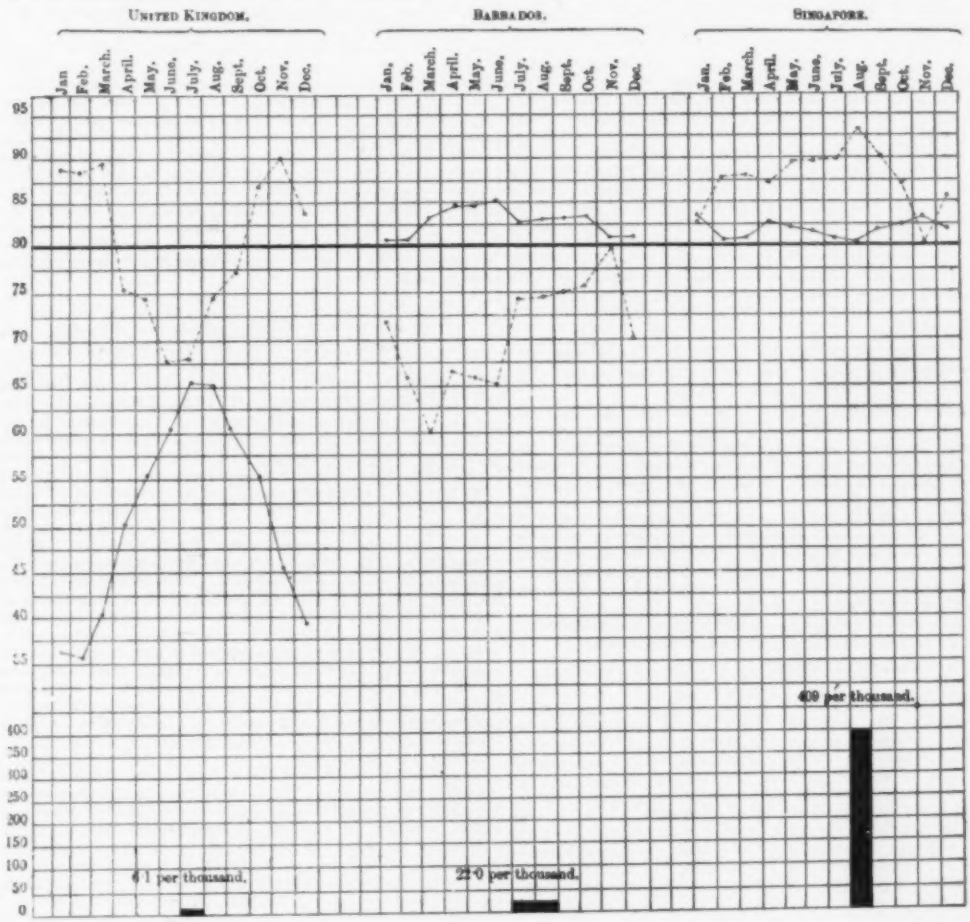
I.—THE METEOROLOGICAL ENVIRONMENT UNDER WHICH INTERMITTENT FEVERS BECOME PREVALENT.

The meteorological conditions under which intermittent fevers become prevalent have long been known and are indicated in the attached chart which I have constructed from figures contained in the annual report of the Army Medical Department. It shows at a glance the difference between a malarial and a non-malarial environment. Where intermittent fever becomes prevalent, as at Singapore, both the atmospheric temperature and the atmospheric humidity are high, the mean atmospheric temperature being above 80° F., and the mean atmospheric humidity considerably above 80 per cent. of saturation throughout the year. On the other hand, where intermittent fevers are not prevalent, as in England or at Barbados, the mean atmospheric temperature or the mean atmospheric humidity, or both, will

[1] Brit. Med. Jour., May 17th, p. 1212.

be much lower. In Barbados, although the mean atmospheric temperature is indeed higher than at Singapore, the mean atmospheric humidity is much lower, whilst in England, although the mean atmospheric humidity is as high as at Singapore for several months in the year the mean atmospheric temperature is very much lower. Thus from the chart it is apparent that the meteorological environment under which intermittent fevers become prevalent is not simply a high atmospheric temperature or high atmospheric humidity, but a high atmospheric temperature *and* a high atmospheric humidity; in other words, the environment under which intermittent fevers become most prevalent is the hot, moist, stagnant atmosphere, as has been known for a long time. What is the effect of exposure to such meteorological environment?

CHART SHOWING THE METEOROLOGICAL ENVIRONMENT UNDER WHICH INTERMITTENT FEVERS BECOME PREVALENT.



The black line shows mean atmospheric temperature. The dotted black line shows mean atmospheric humidity, saturation = 100. The figures 0 to 400 show admissions per 1000 of strength for ague per annum. The figures 35 to 95 show degrees Farenheit and degrees of humidity.

II.—EXPOSURE TO THIS METEOROLOGICAL ENVIRONMENT PRODUCES INTERMITTENT EXCESS OF WATER IN THE BLOOD.

The amount of water in healthy blood is about 790 parts in 1000. During winter and spring about 80 ounces of water are taken in daily as drink and food and the same quantity, or a little more, excreted daily. During summer and autumn the amount taken in as drink is considerably increased and there must of course be a corresponding increase in the amount excreted, otherwise the amount of water in the blood would become excessive. Excretion of water from the blood takes place from the kidneys, the lungs, the skin, and the intestines. Practically, the amount excreted by the intestines remains constant in health, but the amount excreted by the kidneys and by the skin and lungs varies according to the atmospheric temperature. In winter and spring, when the atmospheric temperature is low, about two-thirds of the total quantity of water, or 60 ounces, are excreted by the kidneys, and one-third, or 20 ounces, by the lungs and the skin. In summer and autumn, when the atmospheric temperature is high, water is excreted chiefly by the skin and the lungs and the amount excreted by the kidneys is correspondingly reduced. The evaporation of this increased quantity of water from the lungs and the skin keeps the body temperature normal under exposure to very high atmospheric temperatures. But if during this season, when water is being excreted chiefly through the skin and the lungs, any influence impedes its free excretion through these channels without at the same time producing a compensating increase in the amount excreted through the kidneys, the obvious result must be an increase of water in the blood.

Now, the very high atmospheric humidity, from 80 to 95 per cent. throughout the year, registered at Singapore, as shown in the chart, offers a very decided impediment to the free excretion of water from skin and lungs. For atmospheric air can only take up as much aqueous vapour as will saturate it.

Moreover, there was no fall of temperature which would be sufficient to produce a compensatory increased excretion of water through the kidneys. Hence, when ague was so prevalent at Singapore the environment was such as must certainly produce increase of water in the blood. Wherever such environment is found an intermittent fever will certainly also be found. It will be explained later why this increase of water in the blood must be of an intermittent character. The environment given in the chart for Singapore may be taken as typical of the environment under which intermittent fevers reach their maximum of prevalence continued throughout the year. In India and some other countries such an intense degree of this environment is usually found, with few exceptions, at only certain seasons of the year. For instance, in the hot season in India the atmosphere is intensely dry, containing perhaps only 20 or 30 per cent. of saturation, and evaporation of water from skin and lungs is consequently enormous. To this succeeds the rainy season, almost quite suddenly, and the atmospheric humidity increases to 80 or 90 per cent. of saturation. I have often in India seen the dry and wet bulb thermometers register the same temperature at this season, indicating that the atmosphere is saturated with aqueous vapour and therefore completely obstructing evaporation from skin or lungs. The fall of atmospheric temperature accompanying the setting in of the rains is slight and only temporary. It is not sufficient to produce increased excretion of water from the kidneys, as perhaps anyone who has resided in India will have observed. Consequently water must accumulate in the blood and tissues unless the amount taken in drink be largely reduced. Experience, however, teaches us that instead of being reduced the amount taken during the rainy season is just as much as during the previous hot dry season.

III.—THERE IS KNOWN TO BE EXCESS OF WATER IN THE BLOOD OF THOSE WHO SUFFER FROM INTERMITTENT FEVER.

Manson[2] describes malarial blood as pale lake coloured, thin, and watery. Liebermeister states that there is excess of water in the blood of those who suffer from ague, and that the wasting of the body in ague is sometimes concealed by the excessive amount of water in the blood and tissues. He also says that from this cause the weight of the body may be increased as much as 10 pounds, although there may be only slight œdema of the ankles to indicate an excess of water in the blood and tissues.[3] In addition the dropsical effusions which are not infrequent sequelæ of ague perhaps also indicate an increase of water in the blood of those who suffer from the disease.

Let us next inquire what are the obvious effects of an increase of water in the blood produced as indicated.

IV.—EXCESS OF WATER IN THE BLOOD PRODUCES PYREXIA.

The normal temperature of man is 98·4° F. or 37·0° C. and this is the product of two factors—(*a*) the amount of heat produced within the body and (*b*) the amount of heat given off, or lost, from the body. As regards the first it is known that the source of heat production within the body is the metabolism or tissue change which takes place in every act of vital energy. It has long been known that this metabolism can be increased by the free internal administration of water. If experimental proof of this be asked for pathologists tell us that injection of water into the blood causes a rise of temperature.[4] Hence there can be no doubt but that an increase of water in the blood produced by meteorological environment will in its turn produce an increase of metabolism or heat-production in the body. But meteorological environment produces excess of water in the blood by impeding evaporation of water from the skin and lungs—that is, by diminishing heat loss. If it thus causes increased production of heat within the body and diminished heat loss from the body, as above described, the result must be increase of body temperature—pyrexia. Indeed, this has been proved experimentally by Frey and Heiligenthal who found that exposure in a Russian or hot vapour bath of 113° F. (45·5° C.) for 25 minutes raised the body temperature to 104·3° F. (40·3° C.), whilst exposure in a Turkish or hot dry air bath of 149° F. (64·5° C.) for 50 minutes only raised the body temperature to 101·6° F. (38·6° C.). The explanation of this is plain. In the hot dry air bath evaporation of water from the skin is much increased and keeps the temperature down. In the hot vapour bath evaporation of water from skin and lungs is much impeded by the amount of water vapour in the air and therefore the body temperature rises. The temperature and humidity of the air during the fever season in tropical countries differs very little from those of the Russian vapour bath, and therefore such environment will as certainly, if not so rapidly, produce pyrexia in those exposed to it.

The weakest link in the parasitic theory of malarial fevers always seems to me to be the unsatisfactory explanation which it affords of the pyrexia, which is, after all, the chief clinical feature of these diseases. Laveran himself and other eminent authorities on malaria, when referring to the pyrexia, are compelled to say that the pyrogenic agency is "most likely" or "presumably" or "probably" some toxin, which is liberated from the sporulating parasite shortly before or during the rigor, and which is a solvent of hæmoglobin. The existence of any such toxin, however, is not only apparently not proven, it is but plausible conjecture. But where is the necessity for assuming the existence of a problematical toxin born of a sporulating parasite in those cases clinically identical with malaria in which parasites cannot be found, when Payne assures us that injection of water into the blood causes a rise of temperature, when Liebermeister declares there is this increase of water in the blood in ague, and when, as I have shown above, this increase of water in the blood is the inevitable result of exposure to the meteorological environment found in malarial countries or climates!

V.—THE PYREXIA CAUSED BY INCREASE OF WATER IN THE BLOOD DUE TO METEOROLOGICAL ENVIRONMENT MUST BE OF AN INTERMITTENT CHARACTER.

To make this evident it is only necessary to point out that the environment which produces excess of water in the blood is of intermittent intensity, for in all climates atmospheric temperature and humidity undergo a diurnal variation. The highest atmospheric temperature is usually about 4 o'clock P.M. daily, when, as a rule, the atmospheric humidity is at its lowest. This is the period when evaporation of water from skin and lungs is free. On the other hand, the lowest atmospheric temperature is reached daily about 4 or 5 o'clock A.M., and then the atmospheric humidity is at its maximum. This is the time when free evaporation from the skin and lungs is most impeded. In cold climates this is compensated for by the increased flow of urine produced by the fall in atmospheric temperature at night. But in the unhealthy season in tropical climates there is little or no fall in atmospheric temperature at night to produce this compensating excretion of water through the kidneys, as I daresay anyone will admit who has lived in a malarial climate during the unhealthy season. Consequently water accumulates in the blood, chiefly during the night. Now, as we have seen, the causes producing this increase of water in the blood are more active during the period from sunset to sunrise in the tropics and less active during the period from sunrise to sunset. This intermission in the activity or intensity of the cause must produce a similar intermission or tidal wave in the increase of water in the blood. If the increase of water in the blood is of this intermittent character, so will the pyrexia produced thereby also be.

Now in connexion with this point, that the intensity of the environment producing increase of water in the blood is greater by night than by day, may be noted the fact, admitted by all, that attacks of intermittent fever most frequently commence at night or in the morning. Why the intermittent fever produced in this way is quotidian in some and tertian or quartan, &c., in others would appear to depend on (*a*) the previous condition of the blood of those exposed to the environment, and (*b*) the intensity of the environment. With regard to the former, it is known that in different individuals the quantity of water in the blood varies within certain limits, the average quantity being 790 parts of water in 1000 of blood. It will, of course, require exposure to the environment for some time, more or less, before the quantity of water in the blood is increased to that degree which causes pyrexia. Let it be assumed that the degree which causes pyrexia is 830 parts in 1000. Then if four men whose blood contains respectively 790, 800, 810, and 820 parts of water be exposed to such environment it is evident that the increase of water which causes

[2] Tropical Diseases, p. 71.
[3] Hilton Fagge, p. 48.
[4] Payne's General Pathology, p. 144.

increased metabolism, pyrexia, will be most rapidly produced in the man whose blood originally contained most water—820 parts. It only requires 10 parts added. This also accords with experience which teaches that those with the poorest or most watery blood most quickly contract ague when exposed to the environment. It will, of course, take longer in the other men to produce the 830 parts of water, the man whose blood was in the first instance normal (790 parts) requiring the longest exposure. Again, with regard to the intensity of the environment, let it be assumed that the degree of intensity to which these four men are exposed is such that it will produce an increase of water in the blood equal to 10 parts by one night's exposure. Then it is evident that the blood of the man containing originally most water—i.e., 820 parts—will have its water increased to that degree which causes pyrexia, 830 parts, by *one* night's exposure to the environment; and although during the following 12 hours (day) critical elimination (sweat) may reduce it to the original 820 parts, still if exposure to such environment continues 10 parts of water will be added again the following night, reproducing the necessary 830 parts of water, increased metabolism, and pyrexia—that is, the paroxysms are reproduced once in every 24 hours and the type is consequently quotidian. In this way paroxysm follows paroxysm until medical treatment be adopted or, as will be explained hereafter, the red blood corpuscles are so much reduced that the hæmoglobin is not sufficient to provide material for the metabolism, causing the pyrexia, or until the environment changes. At the same rate of increase—viz., 10 parts each night—it will require two nights' exposure to produce the increase to 830 parts of water in the blood of the man containing originally only 810 parts; and after elimination (sweat) it will take two nights to reproduce, that is, the degree necessary to cause the increased metabolism and consequent pyrexia is only produced every second day. There will be one day of apyrexia. That is, the type in this case will be tertian. Similarly it will require three nights' exposure at an increase of 10 parts nightly to increase the water of the blood in the man, containing originally only 800 parts, to the degree, 830 parts, which I assume produces pyrexia. It will only be produced and reproduced on the fourth day—that is, the type of fever in this man will be quartan. In the blood of a man containing originally only 790 parts of water it will take still longer exposure to produce, and after elimination to reproduce, the necessary 830 parts. In those with still less water in their blood and whose eliminatory organs are perfect it is conceivable that it may not be possible by any exposure to increase the water to 830 parts, and in such cases we should expect immunity from the disease.

It can be seen, then, if ague is due to excess of water in the blood, produced by environment, why the pyrexia should be intermittent in character and also why the type should be quotidian in some and tertian or quartan in others. It also becomes apparent why persons with the poorest or most watery condition of blood should most certainly and rapidly contract the disease when exposed to the environment whilst those with normally less water in their blood are less liable to contract it.

Moreover, if ague is due to excess of water in the blood produced by environment it becomes evident why quotidian is the most common type in tropical climates, while tertian or quartan is the more common type in temperate climates. For it is to be remembered that climates, as regards their atmospheric temperature and humidity, differ only in degree. In tropical climates in the unhealthy season of the year the environment (temperature and humidity) is of a higher degree of intensity and in temperate climates lower. Hence in tropical climates the degree of hydræmia that produces pyrexia will be more quickly produced and after elimination (sweat) reproduced; that is, the type of ague most commonly met with in tropical climates should be that with the shortest period of apyrexia—viz., quotidian, if caused by environment. In temperate climates, on the other hand, the environment not being of so intense degree must of course take longer to produce and after elimination (sweat) to reproduce the degree of hydræmia that causes pyrexia; that is, the type of ague most common in temperate climates, if this theory is sound, should be that with a longer period of apyrexia—viz., tertian or quartan. In both cases this corresponds with experience. In unusually hot summers of cold climates the environment which causes increase of water in the blood will also sometimes, if seldom, be found. Hence the explanation of cases of intermittent fever in cold climates occasionally. Moreover, as the amount of water in the blood depends to a great extent on the balance being maintained between the amount taken in in food and drink and the amount excreted, and as the amount excreted depends to a certain extent on the functional activity of certain organs—skin, lungs, kidneys, &c.—it can be seen how deranged function of such organs might of itself produce increase of water in the blood, altogether independently of external environment. By such functional derangement the occurrence of those anomalous cases of ague which arise in those climates, seasons, or localities where the hot, moist, stagnant atmosphere that produces increase of water in the blood is not found may be explained.

VI.—Excretion of Water from the Blood reduces the Temperature to Normal in Ague.

We know that free elimination of water from the blood in ague reduces body temperature to normal. Free sweating obviously does so. This fact in itself is strong presumptive evidence that the increase of water in the blood is the cause of the pyrexia. For there are many other diseases in the pyrexia of which sweating does not produce this effect. Moreover, although sweating is the usual method of termination of a paroxysm of intermittent fever, the same result—i.e., reduction of temperature to normal—also follows free elimination of water by the kidneys or by purging. These two latter processes, however, only reduce the amount of water in the blood and so reduce metabolism or heat production, whilst sweating, besides reducing in the same way heat production, also increases heat loss and thus more quickly reduces temperature to normal.

It is very suggestive that in the collapse stage of cholera, when elimination of water from the blood has been enormous and the blood remains thick and tarry, the body temperature is subnormal, and as absorption is restored and water again taken into the blood the temperature rises perhaps above normal.

VII.—Increase of Water in the Blood Produces Oligocythæmia.

It has long been known that when water is added to normal blood the red corpuscles lose their discoid form, become spherical, swollen, and dropsical, the hæmoglobin is washed out of them, and ultimately they disintegrate and disappear. Hence it can be seen that increase of water in the blood caused by meteorological environment, which I have shown produces an intermittent pyrexia, will also produce the extensive destruction of red blood corpuscles which is so characteristic of ague.

The tissue chiefly destroyed by the metabolism of pyrexia doubtless differs in different fevers, but in ague the red corpuscles of the blood are chiefly affected, leading to their extensive destruction and consequent anæmia and melanæmia. Hæmolysis or destruction of red blood corpuscles is, however, a process which is always going on even in health within the portal circulation. There the hæmoglobin escapes from the old red corpuscles and is in part converted into new red corpuscles and in part into pigment. Such pigment is taken up by the hepatic cells and forms the colouring matter of the bile, urine, &c. If it is produced in quantity exceeding the amount that the hepatic cells are capable of converting into the colouring matter of the bile, &c., it is obvious that it must find its way into the general circulation and into the tissues, especially of the spleen, liver, kidneys, &c., thus causing melanæmia. Professor Hunter, who closely investigated this hæmolysis, tells us that this process may be increased by two sets of causes—viz., direct and indirect. The direct consists of agents such as water which, injected into the blood, act directly on the red corpuscles, liberating their hæmoglobin and destroying them. The indirect consists of agents which act on the red corpuscles through the medium of the splenic cells. The increased hæmolysis of disease, Professor Hunter adds, is similar to that produced by indirect hæmolytics, with two exceptions—namely, malaria and hæmoglobinuria—which he attributes to the direct action of the parasites on the blood discs. This may indeed be so. But in those cases of ague in which no parasites can be found why attribute the increased hæmolysis to their influence instead of to the increase of water in the blood, which Liebermeister assures us is present in all cases of ague, which Professor Hunter asserts to be a most powerful direct hæmolytic, and which I have attempted to show in the preceding remarks is the inevitable result of exposure to the meteorological environment under which

malarial fevers become most prevalent? During hæmolysis Professor Hunter describes the appearance of the following forms in the blood: (1) colourless spherules, albuminous and highly refractile, of various sizes; and (2) coloured spherules. A red corpuscle becomes constricted at some portion, dividing into two parts, connected by a colourless portion. These are best studied by warming blood to 112° F., a temperature not much above that of the blood in the portal circulation during a paroxysm of ague. The corpuscle then breaks up into a number of highly-coloured spherules. This description of the disintegration of a red corpuscle by a temperature of 45° C. forcibly reminds one of the sporulation of parasites, as described by plasmodists during each paroxysm of ague. Of course, this resemblance of the disintegration of red blood corpuscles to the sporulation of parasites becomes more suggestive when it is remembered that hæmolysis is always more active within the portal circulation—the very situation where plasmodists tell us the parasites may be found when they cannot be found in peripheral blood. 3. Stromata, or decolourised red corpuscles, are also described by Hunter as appearing during hæmolysis. He adds that they are best studied by the injection of water into the blood.

Now, if these forms—colourless spherules, coloured spherules which break up into a number of highly-coloured bodies and stromata—are produced within the portal circulation in health, and if, as Hunter tells us, their production is increased by heat (45° C. or 112° F.) and by injection of water into the blood, it is obvious that their production must be considerably increased during each paroxysm of ague when there is increase of water in the blood and the temperature of the blood within the portal circulation is nearly, if not quite, as high

Manson,[5] a high authority on malaria, tells us that the destruction of red blood corpuscles in malarial disease is greatly in excess of anything which can be accounted for by the number of corpuscles attacked and consumed by the parasites. The number of parasites found in the blood might account for a destruction of 1 per cent. or even 5 per cent., but not for a 20 per cent. destruction, which is not uncommon even after a single paroxysm of ague. If, however, there is a form of ague, as I contend, due to excess of water in the blood this would account not only for a 20 per cent. destruction of the corpuscles, but when extreme in degree it would explain the almost total destruction of blood corpuscles. For increase of water in the blood will affect every corpuscle in the blood, and the greater the increase of water the greater will be the destruction of blood corpuscles and liberation of hæmoglobin. Indeed, so well recognised is this that hæmatologists consider the specific gravity of the blood affords a reliable test of the number of red corpuscles and their hæmoglobin value.[6]

When the liberated hæmoglobin exceeds the amount that the hepatic cells are capable of converting into biliary and other pigments then it will presumably appear in the urine. This would seem to indicate that hæmoglobinuric fever owns the same origin as the non-parasitic intermittent fevers which only I refer to in this paper. This view gains support from the facts that hæmoglobinuric fever is found in those climates where is found at times an extreme degree of the meteorological environment that produces excess of water in the blood, that there exists some as yet unexplained connexion between this disease and malaria, and, as Manson says, the opinion that it is of parasitic origin is based more on considerations of probability than on logical deductions from demonstrated facts.[7] If, as I am trying to prove, there is a form of malarial fever due to excess of water in the blood caused by meteorological environment then the explanation of the connexion between malaria and hæmoglobinuric fever is not far to seek.

VIII.—AN INCREASE OF WATER IN THE BLOOD PRODUCES PSEUDO-PARASITES.

It cannot be said that increase of water in the blood will produce parasites, but it will certainly produce those bodies which are called pseudo-parasites. They were at one time considered to be the cause of malaria.[8] Indeed, there are many still who consider that true parasites can with great difficulty be distinguished from pseudo-parasites. Mannaberg admitted that in a minority of cases they could not be distinguished and Manson says that it takes a large amount of practice to be able to discriminate between parasites and vacuoles in the red corpuscles in fresh films. Indeed, there are even still a few who maintain that they are indistinguishable for the simple reason that they consider the parasites to be merely products of hæmolysis such as may be found within the portal circulation in health in any climate and in the peripheral circulation of those who suffer from malarial fevers. However this may be, it seems certain that increase of water in the blood will produce pseudo-parasites within it. Ehrlich tells us that poikilocytes are the products of a fragmentation of red blood corpuscles which can be produced experimentally by heating. They exhibit movement and were regarded by Kiebs as amœbæ and similar organisms. Now increase of water in the blood and increased metabolism (heat production) caused thereby are the two very agents which we know, from experiment, give rise to the appearance of these bodies in the blood. The changes produced in corpuscles by these agents, as described by physiologists, I give below and in a parallel column for convenient reference some of the more usual appearances of malarial parasites as described by Laveran and others.

Physiologists tell us:—	Experts tell us:—
1. If water be added to normal blood the red corpuscles lose their discoid form, become spherical, swollen, and dropsical, the hæmoglobin is washed out of them, and ultimately they disintegrate and disappear.	1. The red corpuscles attacked by the parasites are usually the larger ones. They lose their discoid form, become spherical, swollen, and dropsical, they lose their colour and hæmoglobin and ultimately are destroyed.
2. If blood be heated vacuoles are produced in the red corpuscles which appear as little, clear, colourless, shining spots that assume spherical, annular, or other form. They change their form, they increase in size, till they occupy half, two-thirds, or the whole of a corpuscle. They exhibit apparent amœboid movement from contractions in the surrounding hæmoglobin, and they throw out little beaded prolongations which wave to and fro. There may be one or more vacuoles in a corpuscle.	2. Malarial parasites appear in the first instance on or in the blood corpuscles as little clear colourless shining spots of various forms, spherical, annular, or other. They change their form, they increase in size until they occupy most or the whole of a corpuscle. They exhibit amœboid movement and throw out flagella. There may be one or more parasites in each corpuscle.
3. If blood be heated the white corpuscles, which may or may not contain pigment, exhibit amœboid movement and Brownian movement of the contained pigment. Quinine paralyses the movements of the white corpuscles and reduces their number.	3. The larger spherical pigmented parasites exhibit active amœboid movements and their contained pigment exhibits active swarming movement. Quinine kills the parasites and removes them from the blood.
4. The result of addition of water to blood and exposure to increase of temperature is wholesale destruction of red corpuscles and production of pigment free and inclosed in spherical or various shaped bodies.	4. The result of invasion of blood by the parasites is wholesale destruction of red corpuscles and increase of pigment free and inclosed in spheres, crescents, &c.

From the above it can be seen how increase of water in the blood will produce bodies closely resembling parasites—in fact, pseudo-parasites. The crescent-shaped bodies have been the subjects of much controversy. Ross, if I remember rightly, attributes their transformation and flagellation to abstraction of water from the serum and says that this is the influence to which they are exposed in the stomach of the mosquito. This opinion he formed as the result of many beautiful experiments. Marshall, on the contrary, after many similar experiments arrived at the conclusion that the transformation and flagellation of the crescent-shaped bodies are due to the addition of water to the serum and says that this is the influence to which they are exposed within the stomach of the mosquito. Although they differ, then, as to whether it is reduction or increase they agree that the transformation is due to some variation in the quantity of water in the blood such as I have shown to be the result of exposure to a certain definite environment.

Increase of water in the blood, then, caused by environment produces bodies in the blood which the best experts admit closely resemble parasites and which none but experts are capable of distinguishing from them.

When critical elimination of water (sweat) reduces the amount of water in the blood to normal the pseudo-parasites will disappear, or perhaps it would be more correct to say that the corpuscles which have not been destroyed will

[5] Tropical Diseases, p. 70.
[6] Ehrlich: Histology and Pathology of the Blood, p. 16.
[7] Brit. Med. Jour., Sept. 1st, 1900, p. 568.
[8] Ehrlich and Lazarus: Histology and Pathology of the Blood, pp. 53, 54.

resume their normal appearance gradually. This production of pseudo-parasites during each paroxysm of an intermittent fever and disappearance during the apyretic interval would of course render more difficult the differentiation of parasitic from non-parasitic ague except by experts. The establishment of the theory that there is an intermittent fever due to environment would, however, relieve Laveran's supporters from the difficulty of explaining how those cases in which no parasites can be discovered in the blood can possibly be caused by parasites. Moreover, the presence of pseudo-parasites in the blood of such cases would enable us to understand the assertion of those who maintained that the bodies they found in malarial blood were not parasites at all but simply altered blood corpuscles. Manson says that the staining process for diagnosing malaria is not to be depended on unless carried out by those with great experience.

IX.—INCREASE OF WATER IN THE BLOOD WILL PRODUCE ENLARGEMENT OF THE SPLEEN.

As we have seen, increase of water in the blood increases hæmolysis or the destruction of red blood corpuscles. But the taking up and disposal of the fragments of disintegrating red blood corpuscles is the normal function of the spleen. Hence when increase of water in the blood produces increased destruction of these corpuscles increased functional activity of the organ and therefore increase of its size or bulk follows. Moreover, the increase of water by increasing the volume of the blood will of itself also directly tend to enlarge the spleen.

When critical elimination of water (sweat) occurs there is, of course, diminished volume of the blood, diminished destruction of red blood corpuscles, and consequently diminished functional activity and size of the organ which is normally called on to dispose of the disintegrated corpuscles. Hence in the apyretic intervals the spleen resumes normal size. But if this intermittent increase of water in the blood is frequently repeated the organ will become permanently enlarged, for it is known that transitory but repeated hyperæmia of any organ leads to a permanent enlargement of the organ, such as is found in ague cake, in those suffering from chronic malaria.

Now this view that the enlargement of the spleen is in some cases of intermittent fever at all events due to the intermittent excess of water produced by meteorological environment receives some support from a consideration of the periodical change in size of the organ that takes place in health. In health it is known that the spleen enlarges to some extent after every meal, reaching its maximum after some hours and then returning to its normal size. When food is taken into the stomach the first portion of it to be absorbed is its water, which enters the blood directly through the gastric vessels. This addition of water, of course, increases the volume of blood, and also destruction of blood corpuscles, thus leading, as described above, to the enlargement of the organ. This rapid absorption of water of the food by disintegrating and so getting rid of the old and useless blood corpuscles prepares the blood for the pouring into it some hours later of the other constituents of the food *viâ* the longer route of the intestinal lacteals and thoracic duct.

Another point which supports this view of the cause of enlargement of the spleen is that whatever other medicines, &c., we may also employ, a free use of hydragogue purgatives is indispensable for the reduction of the organ to its normal size. Is not this an indication that in the first instance its enlargement is due to increase of water in the blood?

The spleen is enlarged in ague, then, because in this disease there is increased destruction of red blood corpuscles, the disposal of which in ague, as in health, is the normal function of the organ, and the increased destruction of corpuscles is produced by increase of water in the blood.

X.—THE MEASURES FOUND MOST USEFUL IN THE PREVENTION AND TREATMENT OF AGUE REDUCE CONSIDERABLY THE AMOUNT OF WATER IN THE BLOOD.

Prevention.—Drainage of the soil in paludal districts undoubtedly eradicates or at least considerably reduces the prevalence of ague. The most obvious effect of drainage is, however, that it dries the soil and therefore the superincumbent atmosphere. Drainage removes or at least reduces one factor (atmospheric humidity) of the environment that produces increase of water in the blood. In well-built, well-raised houses the humidity of the air is less than in the open, and those occupying such houses are therefore less likely to contract the fevers to which I am referring than those who are liable to exposure at night. The same may also be said of residence in huts, tents, or even within mosquito curtains.

Treatment.—All effective treatment of ague reduces the amount of water in the blood. Diaphoretics, diuretics, and purgatives certainly do so. And it is to this that I attribute the curative and, indeed, preventive action of quinine. When ague becomes chronic a course of Turkish or *dry*-air baths is most beneficial; and what so obviously reduces the amount of water in the blood? Removal from the influence of the meteorological environment that produces increase of water in the blood usually cures ague.

XI.—SUMMARY.

What I have written above may be shortly summarised as follows: 1. Cases of fever, clinically identical with malaria, occur in the blood of which parasites could not be found after repeated search before quinine had been given. 2. The meteorological environment found where such cases occur, and indeed in all malarial climates, increases the amount of water in the blood of those exposed to its influence by impeding elimination through the skin and lungs (evaporation—heat loss) and through the kidneys. 3. There is known to be increase of water in the blood of those suffering from ague (Liebermeister). 4. Increase of water in the blood increases metabolism—i.e., heat production—and produces a rise of body temperature (Payne). 5. As environment thus causes diminished heat loss from the body and increased heat production within the body it is plain that it causes pyrexia. 6. This pyrexia must be of intermittent variety as the environment which produces it is of intermittent intensity—i.e., undergoes diurnal variation. 7. Elimination of water from the blood (sweat) in ague reduces the temperature to normal. 8. Increase of water in the blood produces poikilocytosis, pseudo-parasites, liberation of hæmoglobin, extensive destruction of red blood corpuscles, and melanæmia. 9. An extreme degree of these changes obviously leads to hæmoglobinuria. 10. Increase of water in the blood produces enlargement of the spleen. 11. Removal from the environment that produces increase of water in the blood usually cures ague. 12. All treatment of ague which is efficacious reduces the amount of water in the blood. 13. From these facts I think it is not unreasonable to conclude that those cases of ague or intermittent fever in which no parasites can be found are demonstrably due to the environment under which they arise.

If my view is correct it is only one more illustration of the truth of the old saying that pathology in many instances seems to be but physiology in distress.

RESULTS IN HAVANA DURING THE YEAR 1901 OF DISINFECTION FOR YELLOW FEVER,

UNDER THE HYPOTHESIS THAT THE STEGOMYIA MOSQUITO IS THE ONLY MEANS OF TRANSMITTING THE DISEASE.[1]

BY W. C. GORGAS,

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IN order clearly to show the results of our work in Havana it may be well to go over the ground and to point out what the conditions were before we commenced work, and to look into some general considerations with regard to the habitat of yellow fever. When we attribute the results of the work here to our methods of destroying infected mosquitoes it has been objected that yellow fever has disappeared from many other cities under other methods of disinfection and when no particular effort was made to stamp out the disease; and instances are cited of cities of the United States, such as Boston, Philadelphia, New York, and New Orleans, and some of the smaller towns in the West Indies, Mexico, and South America.

Havana is unique in being the only city in the Western

[1] A paper read before the International Sanitary Congress held at Havana, Cuba, on Feb. 15th, 1902.

Continent where yellow fever has really always been endemic during historic times, and when we come to look into the matter the reasons are obvious. In any community where frost occurs yellow fever will always disappear during the winter. Even in our Southern ports, such as New Orleans, Mobile, and Pensacola, yellow fever habitually disappears at that period. Incidents might be adduced of its persisting through the winter, but such instances are rare. The natural tendency of these cities would be to free themselves of yellow fever if re-introduction from the outside is prevented. In the smaller towns within the tropics, those having a non-immune population of, say, 50, the same tendency is observed from other causes. While yellow fever would not die out from climatic conditions, in the course of a year or two these few non-immunes would disappear as non-immunes either from death or by becoming immune from having had yellow fever, and the tendency would be for this disease to disappear and to re-appear when the population had again become non-immune to a considerable extent. This is really the history of the disease as observed. Of course, the larger the non-immune population in the tropics the longer the epidemic period lasts, sometimes many years. Even cities of the size of Vera Cruz and Santiago de Cuba are not truly endemic foci in the same sense that Havana is. Looking back over the history of those cities many years at a time can be found in which there was no yellow fever, and if introduction from the outside could have been prevented they would have freed themselves from yellow fever from the above causes. In Havana the conditions have been different: it is the principal port of entry for Cuba and there has been a considerable influx of non-immune Spaniards—from 4000 to 30,000 annually. Theoretically, from the existing conditions we would expect that yellow fever would be endemic in Havana, and as a matter of fact as far back as the records go from which any at all reliable history of the statistics of the city can be obtained a month has never passed until the American occupation without a death from yellow fever. And there has probably in all this time never been a day on which there was not a case of this disease in Havana. This is the only city in the world of which that can be said. Probably Rio de Janeiro can in future be placed in the same category. Its large population, large immigration, and latitude would seem to make the conditions very similar to those of Havana.

I go over this ground to show that the causes which have made yellow fever disappear from other cities in all latitudes of the Western Hemisphere cannot occur in Havana. The statistics of yellow fever for Havana, as far back as we have official record, are given in the appended table and show the deaths from this disease month by month.

When we commenced work in Havana the island had been suffering for five years from an exhausting civil war and during the few months preceding the city had undergone a blockade by the American fleet. The hygienic conditions of the city were therefore at that time considerably worse than they were in normal times. But the non-immune population was small; immigration had dwindled during the war and had practically stopped for the year preceding. We went to work on the usual sanitary lines with our efforts directed more particularly toward yellow fever. I will not attempt any description of the general sanitary work but will enumerate the methods adopted towards yellow fever.

Up to July of the first year of American occupation there was little yellow fever in the city. Then immigrants began to pour in and some 16,000 reached Havana between July and Dec. 31st in the year 1899. From July to Dec. 31st we had quite an epidemic of yellow fever, and the December of 1899 was the severest December as regards yellow fever that had occurred for years. In February, 1900, I was appointed the Chief Sanitary Officer of Havana and I know from personal observation that from that time the regulations with regard to yellow fever were carefully carried out.

The reporting of yellow fever was compulsory. Upon the report of a case it was promptly isolated and quarantined by guards employed by the Sanitary Department. No communication whatever was allowed within the quarantined area except that of the visiting physicians and the sanitary inspector. All supplies had to pass through the sanitary guard. The isolation was as complete as military authority and liberal expenditure could make it. The case was then referred to a board of experienced physicians who visited the patient and made the diagnosis. If the case terminated in death the body was buried with the usual sanitary precaution adopted in highly dangerous diseases. In all cases the quarantined area was disinfected. First, by carefully wiping down everything with a bichloride solution and then

TABLE SHOWING DEATHS FROM YELLOW FEVER IN THE CITY OF HAVANA.

Years ...	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870
Months.															
anuary ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
February ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
March... ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
April	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
May	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
June	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
July	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
August ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
September..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
October ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
November...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
December...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals ...	1309	2058	1396	1193	439	1020	1386	560	555	238	51	591	290	1000	572

Years ...	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886
Months.																
anuary ...	18	20	32	7	16	24	8	26	11	16	7	9	14	26	4	4
February ...	23	13	23	4	16	24	9	13	13	9	3	11	9	16	3	0
March... ...	12	4	27	18	32	29	11	5	6	20	3	14	21	8	1	0
April	54	4	37	22	34	33	8	28	13	44	6	18	34	32	2	1
May	91	13	127	85	32	103	16	53	40	40	6	84	75	55	3	1
June	201	68	378	172	142	292	143	184	237	50	37	176	162	66	4	14
July	234	68	416	361	187	675	249	504	475	179	90	195	177	131	13	33
August ...	138	70	127	416	144	250	285	374	417	148	127	73	148	97	34	39
September..	72	59	35	186	102	97	234	179	148	75	94	56	50	41	32	37
October ...	55	38	28	91	109	42	185	106	44	32	39	33	72	24	41	16
November...	51	85	5	42	105	31	150	53	31	21	38	36	45	8	22	13
December...	42	73	9	21	82	19	76	34	9	11	35	24	42	7	6	9
Totals ...	991	515	1244	1425	1001	1619	1374	1559	1444	645	485	729	849	511	165	167

Years ...	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901
Months.															
anuary ...	5	8	17	10	10	15	15	7	15	10	69	7	1	8	7
February ...	6	8	5	4	3	10	6	4	4	7	24	1	0	9	5
March... ...	8	14	5	4	4	1	4	2	2	3	30	2	1	4	1
April	22	24	8	13	5	8	8	4	6	14	71	1	2	0	0
May	84	26	17	23	7	7	23	16	10	27	88	4	0	2	0
June	128	36	37	38	41	13	69	31	16	46	174	3	1	8	0
July	102	74	48	67	66	27	118	77	88	116	168	16	2	30	1
August ...	73	113	73	60	66	67	100	73	120	262	102	16	13	49	2
September..	36	63	37	33	65	70	68	76	135	166	56	34	18	52	2
October ...	33	48	21	32	48	54	46	40	102	240	42	26	25	74	0
November...	20	33	21	15	24	52	28	23	35	244	26	13	18	54	0
December...	15	21	14	9	17	33	11	29	20	147	8	13	22	20	0
Totals ...	532	468	303	308	356	357	496	382	553	1282	858	136	103	310	18

by filling all rooms with formalin gas, using a litre of the 40 per cent. solution to each 1000 feet of space disinfected. Fabrics of all kinds were taken to the steam disinfecting plant and there disinfected. Under this system we hoped to decrease yellow fever greatly and in the course of a few years to eradicate it from the city.

The general sanitary measures adopted appeared to be rapidly decreasing the general death-rate. The general death-rate in 1898 was 91·03 per 1000, in 1899 it fell to 33·67, and in 1900 continued to decrease to 24·40. But our work apparently had no effect upon yellow fever. The winter epidemic of 1899 continued through the spring and summer, reaching in the fall the proportions of a sharp epidemic, even for Havana. We had during the year 1900 1244 cases of yellow fever, with 310 deaths. All classes suffered, particularly the higher officials on the military governor's staff. The chief quartermaster of the island, the chief commissary for the island, and one of the aides of the military governor died from yellow fever.

The Sanitary Department was much discouraged at the result of the work. It seemed to me that general sanitary measures could not be more extensively carried out than we had done during this year. We had all the power of the military authority behind us and ample means. During this year, on the internal sanitation of houses, exclusive of street-cleaning, disposal of garbage, &c., we spent about $25,000 per month and employed some 300 men daily. The general sanitary conditions were improving in the most satisfactory manner but we evidently had not produced the slightest effect upon yellow fever. We commenced 1901 much discouraged, with the most unfavourable outlook as far as yellow fever was concerned. The non-immune population was larger probably than it had ever been before. 26,000 immigrants had come into Havana during the year 1900. Yellow fever was in every part of the city. The deaths from yellow fever in January and February were large and the probabilities all pointed to our having a more severe epidemic in 1901 than in 1900.

The results of the investigations by the Army Board of the theory that the stegomyia mosquito was the only carrier of yellow fever, first advanced by Dr. Charles Finlay, were published about this time. This work was so brilliant in its execution and so positive in its results that, as I look back now, I am surprised that I was not at once convinced. But many years of contact with men engaged in the practical work of managing yellow fever and my own personal experience with this disease had so impressed me with the belief that fomites were the principal, and practically the only, carrier of the disease that I had scant belief in the mosquito theory. But General Wood was determined that every possible measure should be taken for the reduction of the disease and he authorised me to go to any reasonable expense in providing for the destruction of mosquitoes, which I then considered only a possible and exceptional means of transmitting yellow fever. But having undertaken it the department bent every energy to carrying it out thoroughly, and as I look back I have the satisfaction of believing that we could not have carried it out more thoroughly even if we had known that the results would be what they have been.

In looking over the ground beforehand we concluded that for practical operations three fields of work had to be considered. In the first place, to destroy all the stegomyia we could, so as to limit the number of insects capable of conveying the disease. For it seems obvious that if we had no stegomyia we would have no yellow fever. In the second place, to prevent the stegomyia from biting the yellow fever patient; because, if we could prevent the mosquito from becoming diseased we would also prevent yellow fever. And in the third place, to destroy all mosquitoes that had bitten yellow fever patients and thus become infected; because if these are destroyed it is evident that the disease would be stopped.

With the object of reducing the number of mosquitoes an ordinance was issued requiring all people within the city limits to keep receptacles containing water mosquito proof. The city was divided up into districts and an inspector was appointed for each district who kept up a constant inspection, with the view of enforcing these ordinances. He was accompanied by men with oil-cans to pour oil into all puddles, cess-pools, &c., about the dwellings, and after sufficient notice had been given all receptacles in which larvæ were found were destroyed. All persons having larvæ on their premises were fined under the municipal ordinances. 50 men were employed in this work. 100 men during most of the summer were employed under proper superintendence in the suburbs, draining all pools and low ground and pouring oil into such places as could not be drained—that is, during most of the past summer 150 men devoted their attention to killing mosquitoes in the larval stage.

To meet the second proposition—that is, to keep the stegomyia from biting the infected man—all hospitals where yellow fever was received were ordered to be thoroughly screened, and this was at first enforced. In cases of yellow fever occurring in private houses the sanitary department screened them at public expense. Ordinarily, within two hours after the report of a case of yellow fever the quarantined area was thoroughly screened. We kept a sufficient number of ready-made screens on hand for the purpose and 30 men were employed in this work.

To meet the third proposition—that is, killing the infected mosquitoes—the infected building and all adjacent buildings were gone over from top to bottom with pyrethrum powder; 150 pounds, on the average, were used in each case. This work was done in addition to the disinfection as carried out the preceding year. While pyrethrum powder is not as good a mosquitocide as some other substances it is the least objectionable to the people whose dwellings are being fumigated. It causes no injury to fabrics and within four or five hours the room can be again occupied without discomfort. It, however, does not kill all mosquitoes. A good many of them are simply intoxicated and will revive if exposed to fresh air. For this reason the mosquitoes have to be carefully swept up and destroyed. The houses contiguous to the infected house were gone over in the same way on the possibility of infected mosquitoes having escaped to neighbouring houses. Every room was carefully sealed and pasted just as we had done in using formalin. In this work some 40 men were employed during the summer. We used a pound of pyrethrum powder to each 1000 cubic feet of air space.

In January, 1901, we had 24 cases of fever with seven deaths—a large number for that month; in February there were eight cases and five deaths.

The mosquito work was inaugurated on Feb. 27th. We went through March with only two cases, which occurred on the 2nd and 8th. I was much pleased with this but not particularly impressed, knowing that it might be a coincidence. We then went to April 20th without another case. This was unexpected, particularly as the year had commenced so badly and as there was plenty of non-immune material around. The table will show that this condition of affairs had never been approximated before in Havana. On April 21st and 22nd there were two more cases, but under our system of disinfection the disease did not spread. I began to feel pretty certain by this time that the results were due to our mosquito work. On May 6th and 7th we had four more cases, but this focus was promptly controlled. We then went through the whole month of June up to July 21st before we had another case.

It was exceedingly important to have all cases reported so as not to let a focus get started and spread. A great element in the reporting of cases was to have as little opposition as possible on the part of the people. The fumigation for the mosquito caused very little inconvenience compared with the disinfection of fomites and after much discussion and deliberation with the officers in charge of the disinfecting work I determined, the latter part of June, to do away with all sanitary measures against yellow fever, except those directed towards the mosquito, as the only means of the transmission of the disease.

These measures went into effect on July 1st and after that time nothing was sent to the disinfecting plant in yellow fever cases and at the infected point only measures looking to the destruction of mosquitoes were taken. The guard was still kept at the infected house, but the physician was allowed to specify a reasonable number of immunes who might go to and from the quarantined area. The guard was directed to see that the screen doors were kept closed and that the ordinary sick-room hygiene was carried out.

About the middle of June a pronounced focus of yellow fever developed in Santiago de las Vegas, a town about 12 miles from Havana. The successful management of this focus was another evidence of the efficacy of the methods adopted in Havana, but the length of this paper does not allow me to go into details of these cases. Santiago de las Vegas is a town of 5000 inhabitants, with a non-immune population of 475. It is really a suburb of Havana and

considerable numbers of people come and go every day. Besides Santiago de las Vegas there were three or four other towns with direct communication that were having yellow fever about this time. We discovered nine cases that came into the city of Havana from Santiago de las Vegas during June, July, and August. As Havana had been entirely free from yellow fever during June I am inclined to think that Santiago de las Vegas was the point from which we became reinfected. During July we had four cases in Havana, with one death; during August we had six cases with two deaths. Becoming satisfied that we were being reinfected from outside towns I obtained authority from the Military Governor to place inspectors on all railroads coming into Havana from infected points. These took the names of all the non-immunes coming into the city and kept them under observation for a week. This worked very well in practice. All the cases known to have come into the city were reported by these inspectors.

As the infection was severe in Santiago de las Vegas an appropriation of $4000 was made for the purpose. We adopted the same methods there as in Havana and at once controlled the disease. The last case occurred in Santiago de las Vegas on August 31st. A case from this point was reported on Oct. 14th, but I, personally, do not think it was a case of yellow fever. It was an exceedingly mild and doubtful case, though diagnosed as yellow fever by the board. On Sept. 28th we had our last case in Havana. During October, December, and January we had none.

The whole year has been very unusual in its yellow fever conditions and is far below any preceding year of which we have record in the number of cases which have occurred. October and November have always been months when yellow fever was rife in Havana, and to have had none at all in these months in 1901 is remarkable. During 1900 the general death-rate had been greatly lowered by the sanitary work done, but yellow fever had not been much affected and we had a sharp epidemic. In 1901 all the conditions were unchanged, except that work for the destruction of mosquitoes was carried out, with the result that yellow fever at once almost disappeared and really did disappear in the last three months of the year.

I submit that this is evidence of the practical demonstration of the mosquito theory.

Havana.

CASE OF RIGHT AORTIC ARCH WITH ABNORMAL DISPOSITION OF THE LEFT INNOMINATE VEIN AND THORACIC DUCT.

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FEW parts of the human body are subject to such interesting abnormalities as are the pulmonary artery, the aorta, and its branches, and since the researches of Rathke, Allen Thomson, and others it has been possible to account for and to classify the vast majority of these abnormalities on embryological grounds. It will be remembered that in the early fœtus the dorsal aorta is formed by the junction of the fourth arches on the right and left sides, and that a great portion of the fourth right arch afterwards disappears, the remnant forming the right subclavian artery, while the fourth left arch becomes the arch of the aorta. The fifth right arch also disappears, whilst the fifth left arch is represented in the adult by the pulmonary artery and by the ductus arteriosus connecting that artery with the aorta. The causes of variation from the normal are obscure, but it is a natural supposition that when inflammation or obstruction affects those vessels which should normally persist and causes them to atrophy compensation will be brought about by an increase in the size of the corresponding vessel on the opposite side. A certain degree of inherent instability in the development of the fœtal vessels must also be considered as existing apart from pathological causes.

The subject of the present irregularity was an adult male. The position of the heart was quite normal and there were no irregularities of its valves, septa, arteries, or veins. The ascending aorta, which was somewhat large, arose from the base of the left ventricle and took a course upwards and to the right, passing behind the sternum, crossing the trachea until it reached the level of the second dorsal vertebra on the right side. It here bent acutely backwards on itself, thus coming in contact with the right side of the third dorsal vertebra. The vessel was now directed gradually towards the middle line, but when it reached the level of the upper border of the seventh dorsal vertebra it described a gentle curve with the convexity towards the right side, till it reached the middle line between the twelfth dorsal and first lumbar vertebræ. It will thus be observed that the vessel in its course arched over the root of the right lung. The main arterial trunks were given off in the following order:—(1) left common carotid; (2) right common carotid; (3) right subclavian; and (4) left subclavian. It will be observed that the innominate artery was absent. The left common carotid was somewhat larger than usual and measured 14 centimetres from its origin to its bifurcation. The right common carotid measured 11 centimetres. These vessels pursued a normal course, as did also the right subclavian artery. The

FIG. 1.

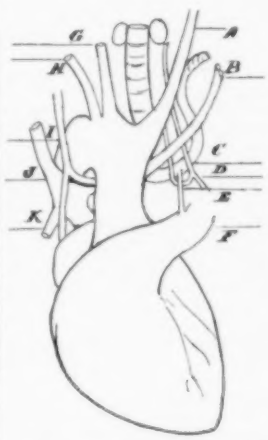

FIG. 2.

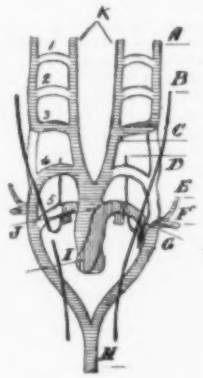

FIG. 1.—Diagram of case recorded. A, Left common carotid. B, Left innominate vein. C, Left subclavian artery. D, Left vagus nerve with recurrent laryngeal. E, Ductus arteriosus. F, Pulmonary artery. G, Right common carotid. H, Right subclavian artery. I, Right vagus nerve with recurrent laryngeal. J, Right innominate vein. K, Vena azygos major.

FIG. 2.—Diagram from Quain showing the mode of development of the great arteries in the present case. 1, 2, 3, 4, 5, The primitive vascular arches. A, Internal carotid. B, Vagus nerve. C, Common carotid. D, Recurrent laryngeal nerve. E, Vertebral artery. F, Subclavian artery. G, Ductus arteriosus. H, Descending aorta. I, Pulmonary trunk. J, Ascending aorta. K, External carotid.

left subclavian presented some points, however, which are of much interest; as noted above it was the last of these vessels arising from the aorta. Its origin was from a pouch-like process projecting from the left side of the descending aorta. This pouch measured one and a half centimetres in length and equalled a normal common iliac in diameter. It ran to the left side at right angles to the aorta, having the third dorsal vertebra behind it, while the posterior surface of the œsophagus rested on its anterior wall. This pouch presented several undulations on its posterior and under wall. At the point where the subclavian took its origin from this pouch the ductus arteriosus, which was very well marked and of large size, joined the pouch, thus connecting it with the left pulmonary artery. The ductus arteriosus measured four centimetres in length. It was quite impervious and lay to the left of the œsophagus. The pulmonary arteries were normal both in their relations and distribution. The subclavian after arising from the pouch ascended to gain the inner margin of the scalenus anticus. There were two left bronchial arteries arising from the dorsal aorta, the left (upper) arising by almost a common origin with the fourth left intercostal artery. There was one right bronchial artery which also arose from the front part of the descending aorta. The left innominate vein was of large size and began behind the inner part of the clavicle. In its descent it passed forwards and inwards and came to lie immediately in front of the origin of the left subclavian artery from the

pouch. It passed from here under the arch of the aorta and united with the right innominate vein at the right side of the arch of the aorta to form the superior vena cava, which opened as usual into the right auricle. Its tributaries were quite normal. The other venous trunks in the mediastina were normal. The left upper azygos vein was of small size. The left vagus nerve, descending in front of the left subclavian artery, passed between it and the left innominate vein, and then took up its position behind the root of the lung. It gave off the left recurrent laryngeal nerve immediately below the junction of the ductus arteriosus and the pouch from which the subclavian was derived. This nerve passed upwards and inwards, curved round the ductus arteriosus, and after passing superficially to the pouch it gained the space between the trachea and œsophagus and pursued a normal course to the larynx. The right vagus nerve crossed in front of the aortic arch, supplying a right recurrent laryngeal nerve the course of which was in every way normal. The right vagus as usual passed behind the root of the lung. The thoracic vertebræ described a convexity towards the right side, which fact has also been noted in cases of right aorta by Otto and Turner, and so that it would support the argument of those anatomists who hold that such a curve is not formed by impulses transmitted to it from the aorta. The thoracic duct in its entire extent lay in the left posterior medastinum, at no point passing to the right of the middle line; its termination was normal in all respects. There was no transposition of the viscera.

The case which is here reported is of rare occurrence and represents "atrophy of the fourth left arch with persistence of the right arch and right and left aortic roots." In Sir William Turner's able article in the *British and Foreign Medico-Chirurgical Review*, vol. xxx., 1862, he divides the class of case which is being dealt with into three groups according to the variations in the condition of the fifth left vascular arch. In his own words: "It will therefore be advisable to consider them under distinct heads, which will be distinguished from each other by different states of the ductus arteriosus—(1) cases in which the ductus arteriosus is quite patent; (2) cases in which the ductus arteriosus is atrophied to a mere fibrous cord; (3) cases in which the ductus arteriosus is altogether absent." This case comes under the second head, and is similar to cases reported by Fiorati and Sandifort,[1] by Mr. Ewen,[2] and by Sir William Turner.[3] A similar case is also figured in Quain's Plates.[4] The present case corresponds as far as the arterial distribution is concerned with that of Sir William Turner. The chief point of difference is in connexion with the left innominate vein. This vein bears a relation to the aorta, as will be observed above, which I do not think has been noted in connexion with any irregularities of the aorta or its branches, or even in subjects in which the arterial system is quite normal. The course of the ductus thoracicus, which was wholly in the left posterior mediastinum, is stated by Quain to be a very rare occurrence. In the cases of right aortic arch previously recorded no such course of this duct has been observed, so far as I am aware. The explanation of the arterial irregularities will be readily understood from the accompanying diagram, but the course of the innominate vein cannot be so easily explained. It is probably not a point of much embryological importance, as in the embryonic condition the left innominate vein is merely a communicative branch and not a primary venous trunk.

Some of the points which should be noted in this case are—(1) the arching of the aorta over the right bronchus and its descent for the most part in the right posterior mediastinum; (2) the absence of the innominate artery; (3) the origin of the left subclavian artery from the pouch-like trunk on the left side of the descending aorta; (4) the fact that a vascular circle is formed round the trachea and œsophagus; and (5) the large but impervious ductus arteriosus uniting the pouch and left pulmonary artery.

These points were all noted in Turner's case, but in no cases of right aortic arch has the peculiar course of the left innominate vein under the arch of the aorta been noted as in the present case, and the rare course of the thoracic duct through the left posterior mediastinum is also worthy of notice.

Glasgow.

[1] Museum Anatomicum, vol. i., p. 273.
[2] Guy's Hospital Reports, 1840, p. 233.
[3] British and Foreign Medico-Chirurgical Review, vol. xxx., p. 1862.
[4] Plate vii., Figs. 1 1 b.

THREE CASES OF ACTINOMYCOSIS.

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THE occurrence of three cases of actinomycosis at one time in a hospital of 150 beds is sufficient reason for reporting them, for the disease is still considered rare.

CASE 1.—A London policeman, aged 22 years, was seized with acute pain in the right iliac region on April 26th, 1900. He was admitted a week later into the Westminster Hospital. After nine days an abscess was opened which was considered to be due to suppurative appendicitis. During the next eight months several incisions were made in the loin and back and in the neighbourhood of the original incision which showed no sign of healing. A dental abscess was also opened. As no evidence of the presence of actinomyces was discovered the disease was at length supposed to be of tuberculous origin. On admission to the Royal Sea-Bathing Hospital, Margate, on Dec. 3rd, several indolent sinuses were present in the right iliac fossa and in the right loin, from which there was a slight amount of discharge containing actinomycotic granules. On the 25th dulness was found on percussion at the right base. Exploration proved the absence of effusion. At the left base auscultation revealed small patches where the lung tissue appeared to be breaking down. A week later cough came on and in a few days two or three pints of purulent sputum containing abundant granules were expectorated without any change in the signs at the right base. The fungus was soon afterwards discovered in pus pressed from a small sinus by the side of a carious bicuspid. During the next few months emaciation steadily increased, accelerated by several attacks of diarrhœa. Blood was present in the stools from time to time, but granules were not detected until August, 1901. Incisions were repeatedly made into new subcutaneous collections of pus in the back. Hæmorrhage was always free on these occasions and tended to persist, especially from one sinus which passed deeply into the region of the left kidney. The presence of the fungus was readily demonstrated in each new abscess. Pain in the head and across the loins and hips was marked at times and survived all drugs but morphia. Progress was constantly downwards until death occurred on Nov. 20th. Several three-week courses of iodide of potassium were given (90 grains daily) without any evidence of beneficial effect; indeed, the patient's general condition was always worse during the use of this drug. The sinuses were occasionally opened up and pure carbolic acid was applied. Surgical treatment of a more radical nature was not possible.

At the post-mortem examination it was found that the lower lobe of the left lung was congested and that there were old pleural adhesions. In the left lower lobe the pleura was adherent in places where there were several small sinuses connecting abscess cavities in the back with deposits of the fungus close to the surface of the lung. Protruding above the surface in the vicinity were several actinomycotic colonies about a quarter of an inch in diameter. Infection of the lung had apparently taken place through the thoracic wall. The capsule of the left kidney was adherent below and behind, where there was an abscess cavity leading through the left loin to the surface. There were three deposits of actinomyces in the lower third of the organ, the pelvis of which contained pus. The appendix, except for adhesions, was normal. No ulceration was found anywhere in the small or large intestine; a few granules were present throughout, free in the lumen of the bowel. The right iliac abscess was entirely retro-peritoneal and communicated with the sinuses in the back. Advanced lardaceous change was found in the liver, spleen, and kidneys.

CASE 2.—The patient was a London coalheaver, aged 27 years. His illness began in the middle of September, 1900, with pains in the right side, right loin, and groin whilst walking. Constipation was troublesome. He was admitted to the London Temperance Hospital on Nov. 2nd with an indefinite swelling in the right side of the abdomen. In mid-December there was a definite tumour of the size of a closed fist to be seen and felt in the upper part of the right iliac fossa. On Dec. 27th an incision was made over the iliac crest, which appeared to be bare, and pus escaped. The patient had gained four and a half pounds in weight since admission. There was pyrexia throughout January and steady

loss of weight. Early in February another fluctuating swelling appeared in the right groin and from this two ounces of pus were evacuated. At the end of February the temperature was always above normal. On the 25th granules were detected and the patient was at once given 60 grains of potassium iodide daily. This dose was soon raised to 90 grains. Two months later he was sent to Margate. Here he continued to lose ground steadily. Several incisions were made in the thigh and back, the escaping pus being highly offensive. After a second attack of diarrhœa the patient became very much worse and died with symptoms of general sepsis on May 24th.

At the post-mortem examination the appendix was found deeply hidden beneath coils of adherent intestine and was surrounded by an abscess extending into the psoas and the muscles of the anterior abdominal wall. This communicated with the sinuses in the groin, right iliac region and back. Septic peritonitis had followed the yielding of adhesions between the coils of bowel, probably during the recent attack of diarrhœa. There were no granules found anywhere except in the pus in the sinuses mentioned above. The mucous membrane of the intestine was apparently healthy everywhere. The liver and kidneys showed fatty degeneration: the spleen was considerably enlarged. At the base of the right lung there were recent adhesions and a few ounces of fluid. The latter were caused by perforation of the chest wall from without by an abscess in the back.

CASE 3.—The patient, the daughter of an East-end labourer, was 14½ years of age. She was admitted to the London Hospital on April 6th, 1900. Abdominal pain and vomiting ushered in the disease early in January. The vomiting soon ceased but the pain continued and became worse on March 25th. Dysuria was also present. On admission a hard swelling was found rising up out of the pelvis and reaching to within two inches of the umbilicus. It was situated more on the left than on the right side. There was a small lump in the right hypochondriac region. On examination per vaginam the cervix was found to be drawn up. The swelling appeared to be connected with the uterus. The operation showed the uterus to be normal and the swelling to be confined to the abdominal wall. A hard inflammatory condition was discovered with a little pus. Temporary incontinence of urine followed the operation and several slight fits occurred the next day. Early in May a hard swelling appeared to the right of the median wound. On May 16th cultures were made; no tubercle bacilli were found, nor was there evidence of actinomycosis. A nightly rise of temperature began in June, but there was little change in the patient's general condition. On June 5th the patient was removed to the Royal Sea-Bathing Hospital. One or two small, almost translucent, granules were found which on microscopic examination proved to be actinomyces. Iodide of potassium was immediately given, 60 grains daily, without effect. In July an abscess under the iliac crest was opened but no granules were detected. The patient did not gain weight and remained depressed and ill. In the middle of September she was received back to the London Hospital. A new tumour arose in the right iliac fossa and increased rapidly in size until it reached nearly to the umbilicus. It was apparently closely connected with the anterior superior iliac spine. On Oct. 1st the anterior abdominal wall was involved. Leave for operation was refused and the patient was discharged. No granules were recognised during her short stay. In December a visit to her home found her under the care of the Canning Town Medical Mission, by whose kindness I was again able to find the fungus in pus from the large abscess which had spontaneously opened. A month or two later an abscess was incised in the right loin. Diarrhœa increased the cachexia and in May the patient died after an illness lasting over two years. Unfortunately, no post-mortem examination was made.

The following points seem worthy of note. First, the resemblance between the three cases and some in the series reported by Mr. Godlee in THE LANCET of Jan. 5th, 1901, p. 3. Secondly, the tendency of the pus to avoid artificial channels and to track or to gravitate towards the loin; free drainage is insufficient treatment. It is conceivable that light hinders the growth of the "fungus." It would be interesting to know the effect of Roentgen or Finsen rays in cases where the skin is involved. Dental surgeons have sometimes opportunities of early diagnosis upon which the life of the patient depends. In Case 1 it is probable that the jaw was first infected. The necessity for repeated examination of pus in cases of obscure abdominal abscess has frequently been emphasised; so has the uselessness of iodide of potassium in the later stages of the affection. In a disease of such malignancy surgical treatment should be radical if drug treatment prove unavailing after fair trial.

I am indebted to Mr. A. H. Tubby, Sir W. J. Collins, and Dr. G. E. Herman for leave to use notes kindly supplied by Mr. H. Hallilay and Mr. J. H. Rhodes. Mr. W. Knight Treves and Dr. A. Rowe were in charge of the patients at the Royal Sea-Bathing Hospital, Margate, and gave me ready permission to publish their cases. To my successor, Mr. R. J. Lambart Sladen, my thanks are due for completing the notes.

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Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CONCERNING THE AURICULAR REFLEX.

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IN a short communication from Mr. E. Donaldson[1] a reflex movement of the auricle of the ear is described which was observed by him in May, 1902. In a case of apparent hyperæsthesia of the external auditory meatus under his care the insufflation of a powder was followed by a movement of the auricle. The puffing of air alone was also found to produce the same effect. In a paper on the frontal or supra-orbital reflex[2] I described, incidentally, this movement which, as a matter of fact, I have observed for several years. As therein stated, at times the reflex follows *gentle* stroking of the skin in front of the meatus—that is, in areas supplied by the auriculo-temporal nerve. The attollens aurem is the muscle usually involved, inasmuch as the movement is generally in an upward direction, and the efferent nerve of the reflex arc is the small occipital. I pointed out that the reflex is more readily obtained in adults by tickling the skin just within the external auditory meatus opposite the tragus. The movement is more lively in children and is obtainable in about one-third of the subjects examined. I find that although a puff of air from an indiarubber ear syringe, as Mr. Donaldson states, is quite effectual, still the quick and sudden contact of a camel-hair brush is much more so. To avoid all voluntary movement I direct that the jaws should be kept firmly and tightly closed.

A proof of the true reflex nature of the movement is the fact that the *opposite* ear, as a rule, is simultaneously elevated. The effect very soon vanishes; it is not possible to obtain it a second time immediately after the first movement. It is necessary to wait for a few minutes before the reflex can be again elicited. Either the will inhibits the movement, or the muscle, as one might indeed expect, since its fibres are seldom active, becomes fatigued. After some education and practice the response becomes more lively, more pronounced, and easier to obtain.

Clacton-on-Sea.

A NOTE ON THE HISTOLOGY OF X-RAYED LUPUS VULGARIS.

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I AM indebted to Sir Victor Horsley for the opportunity of examining microscopically x-rayed lupus vulgaris tissue, which was freely excised from the frontal region of a man, aged 28 years, for purposes of Wolff grafting—i.e., with the whole thickness of skin down to the subcutaneous fat. The area had been subjected about six months previously to 14 daily consecutive exposures to the Roentgen rays. According to the patient the duration of each exposure was about from 10 to 15 minutes with the tube an inch or two from the

[1] THE LANCET, August 23rd, 1902, p. 506.
[2] THE LANCET, Jan. 25th, 1902, p. 219.

head. Briefly, the history of the case was that the patch had commenced at the age of eight years, two other patches, on the scalp and inner part of the right thigh respectively, appearing at the same time. (Involvement of the scalp is unusual and deserves to be insisted on here; at some future time I shall examine the diseased scalp tissue.) The patch on the forehead had been scraped, then treated with plasters followed by formalin to the fresh nodules. As a result of the X-raying, the parts became inflamed and discharged yellowish-green matter at first, followed by watery oozing. It took three months for the area to heal. A few days before the operation by Sir Victor Horsley, the patch on the forehead exhibited a certain amount of cicatrisation about the central parts, but the edges all round presented characteristic apple-jelly nodules and solid granulomatous infiltration. An examination of portions of the diseased frontal patch cut in paraffin and in celloidin and stained in various ways led to the following conclusions. In the more central parts of the patch the collagen was disjuncted and to some extent disintegrated, especially in the upper layers of the corium, and had undergone a certain amount of collastin change.[1] The elastin was sparsely distributed and where present, the fibres were in many instances broken up; the greater part of this tissue had, however, been destroyed. There was very little of it in the upper part of the corium and none in the papillæ. The sweat glands showed surrounding infiltration and signs of disintegration. The hair follicles and sebaceous glands had also apparently disappeared, but in one section a portion of destroyed hair could be seen lying in the sac-like remains of a follicle. The subcutaneous fat cells were in parts irregular and their nuclei were gone; in others they were normal. A large vessel in this stratum showed thickening of its walls and contained red blood corpuscles and leucocytes, with some emigrated leucocytes outside. In places there was a fibrous change in the upper layers of the corium.

There were numerous plasma cells in groups and rows in various parts of the sections from above downwards, and some of these plasma cells were even present deep down in the muscle tissue, which in a few isolated instances had been apparently disintegrated by foci of granulomatous new growth. This is an interesting point and may, perhaps, explain why recurrence occurs even after what appears to be thorough scraping and cauterisation. In the same way it may explain the recurrences which occur after exposure to X rays or the Finsen light. For be it noted the sections which I am referring to were not from the obviously diseased periphery of the patch.

The plasma cells themselves did not all appear to stain in as characteristic a manner as usual, the nucleus in some instances appearing shrunken. There were also what appeared to be naked nuclei; and daughter plasma cells were also present. The epidermis was preserved but thinned in some sections, absent in parts in others, but the latter was perhaps due to the cutting, as it was readily separated from the subjacent corium, which presented here and there a frayed appearance where the epidermis was missing.

Upper Gloucester-place, N.W.

A CASE OF PARALDEHYDE POISONING.

BY ARTHUR H. M. SAWARD, M.R.C.S. ENG., L.R.C.P. LOND.

HAVING had occasion lately to use paraldehyde which caused an erythematous rash I am led to publish some notes of a case that came under my notice where a large dose of the drug was given to a patient by misadventure. The following is the history of the case.

A married woman, aged 43 years, was suffering from carcinoma of the uterine cervix and was in an extremely excitable condition from insomnia and delusions, also at night time she was especially noisy and intractable, evidently on account of the pain caused by the cancer. As she had previously been freely dosed with narcotics and hypnotics it was found necessary to continue the use of such drugs, but the administration of morphia or opium was contra-indicated owing to the urine being albuminous. The pupils were contracted and the pulse was slow. Trional was therefore employed, but as this drug only produced sleep for short periods the following prescription was ordered (the patient at the time being still extremely noisy): one drachm each of paraldehyde and syrup of orange-peel and water to one ounce; but by misadventure she was given an ounce of pure paraldehyde at 12 midnight and the error was neither discovered nor even suspected until some seven hours afterwards. Upon being given the incorrect draught the patient struggled violently and was with great difficulty made to swallow it. A quarter of an hour later the breathing became somewhat irregular and the patient's mouth and larynx full of a thick ropy mucus; the latter was all swabbed out and the breathing then greatly improved. As the patient was also suffering from bad stomatitis it was now thought that some of the draught (as ordered) had entered the lungs during the struggling when it was administered. At 1.15 A.M. the breathing was still rapid and irregular, 32 respirations to the minute, but the pulse was fairly strong (114); the patient, however, seemed half choked with mucus, was becoming somewhat cyanosed, and the tongue was very red and swollen. The mouth was again swabbed out with relief. The patient was now semi-conscious, fairly sensitive to pain, but made no voluntary movement. However, she was easily roused by shouting, pinching, &c. The pupils were variable in size, but reacted both to light and to accommodation. At 2.15 A.M. she was given a hypodermic injection of three minims of liquor strychniæ with two minims of tincture of digitalis, which greatly improved both the respiration and cyanosis, but half-an-hour later the breathing again became rapid and irregular with long inspiration and short expiration. The lips were pale and the mouth was dry and free from mucus. The pulse was regular (124), but the patient was quite unconscious. The pupils were contracted and the corneal reflexes were completely lost. At 3 30 A.M. the breathing was still shallow, more ropy mucus appeared in the mouth, the pulse was still 124, but the patient was more conscious and slightly sensitive to pain; at this time there was an involuntary slight action of the bowels. After this she became somewhat restless, tossing about and moaning occasionally; the pupils were dilated but not reacting to light. The pulse was good and the respirations were much quieter, continuing in this condition until 7.30 A.M., when she again became cyanosed, the pulse feeble and rapid, and the skin hot and dry, with very shallow respirations. At this period of the case the unfortunate mistake in the composition of the draught was discovered, but it was then deemed too late to give emetics or to wash out the stomach, so amyl nitrite was at once inhaled and five minims of liquor strychniæ were given hypodermically, followed by a hot coffee enema; these remedies greatly improved both the pulse and respiration, but the patient still remained somewhat cyanosed, with rapid and shallow breathing. She was then given diffusible stimulants in the shape of ammonia and ether, with brandy and hot water by the mouth, but as these were swallowed with difficulty brandy (20 minims) was subcutaneously administered. For some hours she continued in a very drowsy state, the temperature reaching 100° F., with a pulse rate of 116 and a respiration rate of 28. Still being unable to swallow anything she was given a nasal feed of eggs, milk-and-brandy, and a further hypodermic injection of strychnine. Later in the day she was able to swallow liquids, but at night the nasal feed and strychnine were repeated. In spite of this she continued to be drowsy throughout the following night, requiring more strychnine early in the morning of the second day, but after this she made rapid progress and was able to take plenty of nourishment by the mouth. The stupor gradually left her and in another 24 hours she had completely recovered from the evil effects of the undiluted paraldehyde.

Dr. W. Hale White in his book on Materia Medica states that "even large doses do not affect the gastro-intestinal tract, heart, or respiration; but enormous doses of paraldehyde weaken the action of the heart and kill by paralysis of the respiratory centre." He further says "that paraldehyde in toxic doses paralyses the anterior cornua of the spinal cord; thus it abolishes reflex action and causes paralysis, but does not affect nerves of muscles." In the case related above there was never any definite paralysis except for the short time when the corneal reflex was lost, neither was there any marked effect on the gastro-intestinal tract. No vomiting occurred at any time and the bowels were only opened once slightly; in fact, a soap enema had to be given to empty the rectum. The most prominent symptoms in the case were those due to the heart and respiration. As the official dose of paraldehyde is given as from half to one and

[1] Krzysztalowicz, cited by Ledermann and Blanck: Die Mikroskopische Technik im Dienste der Dermatologie (Dermatologische Zeitschrift, Band ix., 1902).

a half fluid drachms I do not think that it is an exaggeration to say that the ounce given by misadventure in the present case may be reckoned as an enormous dose, and I think that it is only due to the inured state of the patient to narcotics and hypnotics that no further or fatal symptoms intervened on this occasion. I take the opportunity of reporting this case as poisoning by paraldehyde is rather a rare occurrence and I do not see much mention of it in the present-day text-books.

Upper Norwood, S.E.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SHEFFIELD ROYAL INFIRMARY.

A CASE OF PERFORATED DUODENAL ULCER; CŒLIOTOMY WITH SUBSEQUENT GASTRO-JEJUNOSTOMY; RECOVERY.

(Under the care of Mr. ARTHUR CONNELL.)

DUODENAL ulcers are probably not so rare as is usually imagined, for the symptoms are not so definite as are those of ulceration of the stomach. When perforation occurs a diagnosis between these two forms of ulceration is hardly possible, but early laparotomy is the only treatment in both conditions.

A man, aged 24 years, was admitted into the Sheffield Royal Infirmary on Feb. 10th with symptoms pointing to perforation of a hollow viscus. For the last 14 years the patient had suffered from gastric disturbance, the more prominent symptoms being epigastric pain, coming on from one and a half to two hours after meals and at times accompanied by vomiting which greatly relieved both the pain and the discomfort. There were well-marked dilatation of the stomach and epigastric tenderness, but at no time was Dr. W. S. Kerr (to whom Mr. Connell is greatly indebted for these notes) able to feel a tumour. More recently the pain had come on immediately after food. There had never been any sign of hæmatemesis, jaundice, or melæna. The patient had been suffering acutely for a few days before Feb. 10th and had been fed by nutrient enemata. At about 5 A.M. that morning he was seized with a very sudden and acute pain in the epigastric and right hypochondriac regions and became exceedingly restless, sweating profusely. He was seen soon after by Dr. Kerr who on examination diagnosed ruptured ulcer, and with as little delay as possible sent him to the infirmary. On admission it was seen that the man was suffering from shock and was evidently in great pain. The pulse was 108 and soft, the temperature was 96° F., the face was pinched, and the respirations were thoracic. The appearance of the abdomen was "full" but with no apparent movement, and on gentle palpation the recti in the epigastric region were held quite rigidly, this manipulation evidently causing the patient increased discomfort. The liver dulness was not obliterated although there was increased resonance over the whole abdominal surface.

An operation was performed at 10.15 A.M. on Feb. 10th. Ether being administered, an incision was made in the middle line, beginning below the ensiform cartilage and continued down for about three and a half inches. On opening the peritoneal cavity the stomach presented and was found to be distended. There was in addition well-marked gastroptosis. The liver was now gently raised so as to expose to view the right third of the stomach and duodenum; with the next inspiration gas was seen to escape, being evinced by the bubbling of the extravasated mucus, &c. There were no adhesions. The surrounding area was immediately cut off from the general cavity by sterilised gauze. The liver being held up the stomach was gently drawn downwards and to the left when a circular perforation, about a quarter of an inch in diameter, was found in the first part of the duodenum towards its upper and posterior surfaces. The pyloric portion of the stomach was considerably thickened and a probe passed through the perforation into the stomach demonstrated an exceedingly narrow pyloric orifice. After carefully cleaning the area by mopping the perforation was closed by a double row of fine silk sutures. A light gauze drain was placed in position, beginning near the closed perforation and carried out through the wound superficially. It was removed 36 hours afterwards. The abdominal wall was closed in the usual manner except where the gauze drain issued. Before closing the abdominal wound the flanks were carefully inspected but no trace of fluid or recent lymph was found.

There was nothing of special interest to note in the progress of the case after this operation. The patient was fed by nutrient enemata and was allowed small quantities (two drachms) of water by the mouth, his thirst being quenched by saline injections per rectum. Two weeks after the operation he was allowed soft bread-crumbs and milk and his diet was gradually increased but never exceeded boiled fish. Up to March 22nd the patient progressed very favourably, but in spite of a restricted diet there was discomfort never amounting to pain. On examination there was still evident dilatation of the stomach. Given, then, the patient's discomfort on such a diet and his desire to eat more solid material, with the conditions found at the operation—viz., pyloric obstruction of an inflammatory character, with gastric dilatation, *plus* gastroptosis—he was advised to submit to a second operation. On the 22nd, under ether, the abdomen was opened below and to the left of the original wound, through the left rectus which was split longitudinally with the handle of the scalpel. Anterior gastro-jejunostomy was performed, the patient being kept on the table only half an hour this time. He rapidly recovered from the immediate effects of this operation, but, as so often happens after gastro-jejunostomy, he continued to vomit every other day for about a fortnight. He left the infirmary on April 24th feeling "first-rate." When seen on June 9th he said that he had put on half a stone in weight and could eat "anything," and had not the smallest discomfort. He certainly looked remarkably well and stated that his work was a pleasure to him.

Remarks by Mr. CONNELL.—It is somewhat rare for the surgeon to be called upon to operate for perforation of the duodenum caused by ulceration similar to that met with in the stomach, but in the above case not only was there perforation in the duodenum but a condition of the pyloric end of the stomach to which one was easily able to attribute the various symptoms complained of and to urge operative interference after the primary operation for closure of the perforation.

Nothing adds to the successful issue of grave lesions of the upper part of the alimentary canal more than the early recognition on the part of the medical attendant of symptoms pointing to such a condition as perforation, and this is such a typical case of its kind that one cannot fail to appreciate the predominant characteristics. First and foremost amongst the earlier symptoms which should not be lost sight of in this or any other case are the presence of pain of whatever degree—continuous or intermittent—vomiting, and wasting—symptoms which appear to have dogged the existence of this man for 14 years with never an attack of hæmatemesis, melæna, or jaundice as far as one can elicit.

These earlier symptoms, coupled with a careful examination of the epigastric region in particular, which will always yield the unmistakeable sign of tenderness, amounting to pain, if the lesion is more intense, must of necessity compel one to diagnose ulceration either in the stomach or just beyond and accordingly influence the future treatment of the case. But with the sudden onset of excruciating pain and its attendant shock which profoundly affects the general system there can be only one opinion—perforation. Unfortunately, however, there are those who, in spite of such phenomena, fail to make a diagnosis and have recourse to morphia with a view of quieting the patient and so giving them more time to consider the case, which otherwise means a greater chance of general infection of the peritoneal cavity. The surgeon is then placed in the hapless position of either refusing to operate on a moribund narcotised patient or attempting an operation which in the great majority of cases must of necessity end in disaster. It has been my misfortune quite recently to see the patient in a case of perforation of a small ulcer of the

stomach die for want of early surgical interference where the case was seen immediately after the perforation—i.e., if we judge from the history which was absolutely typical, a large dose of morphia administered and the friends recommended to wait. The diagnosis was verified post mortem. I think the surgeon cannot plead too strongly that morphia should be withheld until he has seen the case, for I hold that the patient will have a far better chance and the surgeon, too, is far more likely to make a correct diagnosis, which means that his treatment—operative interference—is more likely to be effectual.

Gastro-jejunostomy was performed here for the following reasons, especially (1) because of the considerably narrowed pyloric orifice; (2) the presence of ulceration of the duodenum; and (3) the persistent discomfort felt even after a restricted diet.

HUNTINGDON COUNTY HOSPITAL.

A CASE OF ADDISON'S DISEASE, WITH HYPERPYREXIA.

(Under the care of Mr. H. LUCAS.)

ADDISON'S disease is usually unaccompanied by any elevation of temperature, and therefore the following case is of interest. The very remarkable temperatures recorded would in themselves suggest doubts as to their genuineness, especially as the pulse-rate was not increased, but care seems to have been taken to eliminate this source of error. For the notes of the case we are indebted to Mr. Jehan M. Barlet, house surgeon.

A woman, aged 39 years, was admitted into the Huntingdon County Hospital on April 2nd, 1902, complaining of great pain in the region of the kidneys with marked bronzing. The patient's brother died two years ago from phthisis, five other brothers being alive and well. She was perfectly well until August, 1898, when she was suddenly seized with acute pain in the back after a hard day's washing. This pain radiated round to the epigastric region and was accompanied by diarrhœa and vomiting and a feeling of languidness and later patches of yellow pigmentation appeared which became gradually darker in colour. She was in hospital in 1898 but went out fairly well and had been able to get about until August, 1901, when the pain increased, as also did the pigmentation, and there was a recurrence of the diarrhœa and vomiting.

On admission the patient was very bronzed, especially about the nipples, axillæ, and face. There was great pain on pressure over the region of the kidneys, especially upon the right side, where there was a tender spot anteriorly, corresponding with the right kidney. She had slight attacks of headache and dizziness occasionally. All the other organs were normal. The urine was normal. There were no cerebral symptoms. The bowels were very constipated and there was no vomiting. Now comes the extraordinary part of the case. On admission her temperature was 99·6° F. but this gradually rose by morning rises and evening remissions to 103·4° on April 8th, when she was put on a four-hourly chart which showed a temperature of 105·6° at 10 P.M. The temperature then kept between 101° and 103° until 2 A.M. on the 10th, when she had a rigor with a temperature of 109°, followed by profuse sweating and a fall to 100·2°. From then till the present time (June 14th) the following temperatures have been recorded: 107°, 12 times; 108°, three times; 109°, seven times; 110°, six times; 111°, once; and 111·6° once. These temperatures were verified by being taken in the rectum, so preventing the possibility of "faking." Another interesting point is that when these elevations of temperature occurred, which, by the way, was usually at 10 P.M. or 2 A.M., there was no increase in the pulse rate—for instance, in the highest temperature at present recorded in her case the pulse-rate was 66 to the minute and this temperature fell to 100° in half an hour. On questioning her as to her feelings she said that she felt as if she were going to die but she felt no pain anywhere.

Remarks by Mr. BARLET.—The question arises as to the cause of these elevations of temperature. I think without doubt that they are due to some nervous influence, but whether they are caused by irritation of the semilunar ganglion and the sympathetic system, thus acting upon the thermogenetic centre, I am not prepared to state and should very much like to hear some opinions on this subject. I have to thank Mr. Lucas for permission to publish this case.

Reviews and Notices of Books.

Nothnagel's Encyclopedia of Practical Medicine (*Diphtheria, Measles, Scarlatina, and German Measles*). Edited, with additions, by WILLIAM P. NORTHUP, M.D. Authorised translation from the German under the editorial supervision of ALFRED STENGEL, M.D. London and Philadelphia: W. B. Saunders and Co. 1902. Pp. 672.

THIS volume is distinguished from others of the series which have so far been published by the substitution of an article on Diphtheria by an American author—namely, Dr. W. P. Northup—in place of a translation of the original article as it stands in the German edition. This departure from the course heretofore pursued has been necessitated by an arrangement entered into by the German author to issue a translation of his article independently of the series. Apart from any sentimental regrets which may attach to a proceeding which severs the traditions of Nothnagel's Encyclopedia on the score of efficiency and completeness there is no reason whatsoever to deplore the change. Dr. Northup is an acknowledged authority on the subject of diphtheria, a writer of experience and erudition, and his well-known association with Dr. Joseph O'Dwyer in the practical development of the method of intubation necessarily imparts a distinctive interest to this article and justifies the honourable inclusion of his name on one of the title pages of a work which among those of other contributors contains the names of von Jürgensen, Immermann, von Liebermeister, Ehrlich, and Stiker.

Confining ourselves for the present to the consideration of Dr. Northup's article we may proceed at once to the observation that the method and style which characterise his contribution are thoroughly representative of the best examples of American authorship. Free from the hide-bound conservatism which detracts so largely from the value of much of our own British medical literature, steadied by the weight of German philosophic thought, and brightened with the leaven of transatlantic originality, this article on diphtheria is not only practically and substantially sound, but also delightfully illuminating and suggestive reading. After briefly epitomising the history of the disease the author immediately proceeds to the consideration of the various etiological factors which determine its development. The bacteriology of diphtheria, in conformity with the importance and interest which attach to this side of the question, occupies the position of honour and the lion's share of the pages devoted to the subject of pathogenesis. As the result of the early studies of Klebs, Löffler, and later of the researches of Roux and Yersin, the specificity of the Klebs-Löffler bacillus is considered by Dr. Northup to have been established beyond a doubt, for the reason that it has been repeatedly proved to fulfil the conditions required of all organisms if they are to be accepted as specific excitants of infective disease. The respective claims of the monistic and dualistic schools are considered in some detail and as representatives of the former school of thought Gorham and Westbrook are freely quoted, and their work on the morphological characteristics of diphtheria bacilli is fully described and illustrated by a plate. Westbrook, whose work has been extended and confirmed by Gorham, divides all diphtheria bacilli into three groups—the granular, barred, and even-staining. Their united observations show that, as the result of the examination of 2375 cultures taken from persons who were healthy, whether disposed to diphtheria or not, the changes from the solid type develop under the influence of the body fluids of persons immune or becoming so. Interesting as these researches are from the morphological side, they contribute little to out

knowledge of the respective virulence of the various types or of the causes which lead to variations in the degree of virulence. Although Dr. Northup gives guarded judgment in favour of the dualistic theory he is quite fair to the claims of the opposite school, to which, by the bye, he seems shy of applying the term monistic. Why this should be it is difficult to understand; the term is a good one and obviates the necessity of a cumbrous paraphrase. Moreover, it has been sanctioned by no less an authority than Hueppe himself. As a means of distinguishing representatives of the pseudo-diphtheritic and true diphtheritic classes of bacilli the author suggests the following tests. A given diphtheria-like bacillus which produces little or no acid in bouillon cultures, which shows no, or only atypical polar-granules in a 12 to 24-hour-old blood serum culture, and is non-pathogenetic for guinea-pigs, may be safely classified as belonging to the great class of pseudo-diphtheria bacilli. These distinctions, though of the greatest practical value in formulating rules, for instance, in regard to isolation and treatment, would probably not be accepted as absolute by the adherents to the monistic theory. The pathology and symptoms need not detain us. The method in which these parts of the subjects have been handled conforms to the description which we have applied generally to Dr. Northup's contribution. On the chapter which is devoted to treatment and which adequately describes the results and applications of antitoxin treatment and the operation of tracheotomy it may be safely assumed that the interest of readers will be mainly centred, for in this chapter 15 pages are devoted to the subject of intubation, and it is written with the authority of a co-deviser of the method and by one whose experiences in the developments of the practical uses of the O'Dwyer tube are probably unrivalled. This section of the article is most profusely illustrated with photographs and skiagrams of the method of inserting the tube and of the tube itself *in situ*. The technique of the operation is admittedly difficult, but so far as any written description can teach us to apply the method that which is supplied in this volume may be considered as most satisfactorily fulfilling its object. A special section is devoted to the consideration of the question whether tracheotomy or intubation should be the operation of election. However, since the combined use of antitoxin and intubation are now so generally considered adequate means of meeting the emergencies incidental to diphtheria there is no need to follow Dr. Northup in his vindication of a practice which he has been so largely instrumental in perfecting. It is satisfactory, however, to know that in this volume of Nothnagel's Encyclopedia is to be found a very complete and lucid account of the operation.

More than half the space at our disposal for the purpose of this review has already been devoted to the consideration of the article on diphtheria. Apart, however, from the fact that the excellence of the contribution warrants this preferential notice, it is probable that the remaining articles on scarlet fever, measles, and German measles are more or less amiliar to our readers either by reason of reviews or by reference to the original German edition. The articles which are devoted to these representatives of the group of acute exanthemata are from the pen of Theodor von Jürgensen and they have been translated by Dr. W. P. Northup, who has availed himself in several noteworthy instances of the general permission conceded by Dr. A. Stengel, the editor in chief, and by Professor Nothnagel, the editor of the German edition, to make such additions to the original articles as may seem necessary to bring the articles fully up to date and at the same time to adapt them thoroughly to the requirements of American or English readers. In the general introduction the possibility of the simultaneous appearance of two or three of the acute exanthemata in the same individual is discussed. Various combinations have been recorded by the most careful observers and these cases are fully quoted and should dissipate all doubts which may be entertained of the possibility of this event occurring. Moreover, such combinations strengthen the view which is now generally held that measles, scarlet fever, small-pox, and chicken-pox are distinct diseases which cannot be traced to a common source and which do not represent merely offshoots from one and the same root. In no other work with which we are acquainted is the question of combined fevers so adequately described. In this connexion the specificity of German measles, or its separate identity from measles, forms the subject of a very interesting disquisition under the heading of "Etiology of German Measles." Von Jürgensen in summing up the evidence for and against the independent existence of the disease asserts that "if we collect all the facts we cannot, in my opinion, recognise the right to independence of the disease which is called rötheln." The translator very properly interpolates at this juncture an editorial note to the effect that Koplik's spots, which occur regularly—approximately 91 per cent.—on the buccal mucous membrane, are absent in rötheln. At the present time in England, as in America, measles and rötheln are almost universally regarded as distinct, so that von Jürgensen's authoritative statement as representing a German view on this subject is of considerable interest. As an instance of the completeness with which this volume has been brought up to date we notice that the controversy on the question of the individuality of German measles and its relationship to the supposed "fourth disease" has been revised up to the end of last year and actually contains an abstract of an important paper on this question which was published as late as December last. On the subject of the relationship of scarlet fever to puerperal fever von Jürgensen ventures the statement that the former fever in the strictest sense is only an insignificant factor in the mortality of the puerperium and further that the condition described as puerperal scarlet fever is in the vast majority of instances merely a septic infection determining skin lesions similar to those met with in scarlet fever, and with regard to the influence of the specific poison of scarlet fever and that of the secondary infections by streptococci, staphylococci, and pneumococci in the determination of the various lesions incidental to scarlet fever itself von Jürgensen is most guarded in his statements. In fact, it is by no means easy to arrive at a real understanding as to whether the author believes that the clinical picture of genuine scarlet fever can be complete without the secondary infections or whether it cannot. Interesting, however, as may be these academic considerations, it cannot be claimed that this volume adds very much to our knowledge of the essential causative agents of measles and scarlet fever and of rötheln. It is rather in the descriptive account of the symptomatology and in the accurate record of clinical experiences that this volume will be found of real service to the majority of readers.

Mammals. By F. E. BEDDARD, Vice Secretary and Prosector of the Zoological Society of London. Being Vol. X. of "The Cambridge Natural History." Edited by S. F. HARMER, F.R.S., and A. E. SHIPLEY, M.A. With 285 Illustrations in the text. London: Macmillan. 1902. Pp. 605. Price 17s. net.

IT is unquestionably the fact that a volume upon mammals is needed at the present juncture. Since the publication of that still almost, if not quite, indispensable work, "Mammals, Recent and Fossil," by the late Sir William Flower and Mr. Lydekker, no general treatise has appeared in English; and it obviously follows that the 11 years which have elapsed since Flower and Lydekker's volume have furnished much additional matter for incorporation into a work dealing with the mammalia. Mr. Beddard has not ignored recent work and has indeed perhaps, as is the fashion nowadays,

dealt rather more fully with the latest discoveries of science than with the older and more established facts. With extinct creatures this is at times apt to be a little dangerous; a bone here and a tooth there have been occasionally brought into unnatural union and relegated to a creature which subsequent discovery has shown to be non-existent; the converse, however, is the more usual course of events, and two fragments put down to beasts of quite different genera or even orders have been found to be the *disjecta membra* of one and the same species, if not individual. With such bits and scraps of bones and teeth the author has dealt warily and, as we think, rightly so. There is no need to fill up page after page with such dubious remains, at least in a volume which does not profess, and could not pretend, to be exhaustive. As the author has pointed out, a volume which must fit in with a series in average length must necessarily undergo some compression and be somewhat pruned of detail. The result of this necessary curtailment and compression has been here and there a rather jerky and notebook style. However *stylus virum arguit* (as the author of "The Anatomy of Melancholy" said long before de Buffon), and Mr. Beddard is nothing if not an anatomist to whom the clear presentment of fact is the only essential. And the book must be clearly criticised from this point of view. Mr. Beddard indeed speaks somewhat contemptuously in his preface of the long stories about lions and tigers which usually form the main part of works upon natural history and are believed by publishers, editors, and contributors alike to be the best means of alluring the public. This anecdotal portion of the subject is replaced in the volume before us with a few choice fragments from the naturalists of old and especially from those two naive writers of the past, Olaus Magnus, Archbishop of Upsala, and the Rev. Edward Topsell, author of "The Historie of Foure-footed Beastes, describing the True and Lively Figure of every Beast." We cannot forbear from quoting from Mr. Beddard the latter naturalist's account of the chase of earthworms by the mole. "When the wormes," says Topsell, "are followed by molds (for by digging and heaving they foreknow their own perdition) they fly to the superficies and very toppe of the earth, the silly beast knowing that the molde, their adversary, dare not followe them into the light, so that their wit in flying the enemy is greater than in turning againe when they are troade upon."

The object of this volume is not, however, to amuse the reader with such matters but to furnish the student with a handy account of the characteristics of the mammalia. In a large work like the present, dealing with the entire range of the subject, it is hardly to be imagined that there are not some lapses into error. The author, for example, has called the polecat by two different names—one in the text and the other in the legend beneath the figure of that animal. Again, the five-horned giraffe of Sir Harry Johnston has been given undue prominence; it has been shown that that animal is not new and that five horns are a character, hitherto unobserved, of the northern giraffe. But this error is doubtless to be accounted for on the supposition that the paper by Mr. Oldfield Thomas of the British Museum was not read, or at least not published, at the time that the proof-sheets of "Mammalia" were passing through the author's hands. On the whole, it may be fairly said that the volume is free from error as to fact; and, indeed, the author's opportunities in his laboratory at the Zoological Society's Gardens have enabled him to check or to retail at first hand a large number of facts in anatomy. The book is thus not, in one sense at least, a compilation. In another sense, like almost every treatise upon any branch of natural history, it is a compilation. In these days of vastly extended knowledge and consequent and necessary specialism it is absolutely impossible for one man to know of his own knowledge all the facts with which he deals in a work even upon so limited a subject, comparatively speaking, as is that of the volume before us. But where facts other than those which are commonplaces of zoological knowledge are dealt with the author is careful to quote authorities, though the bibliography is not, and could hardly pretend to be, anything like exhaustive. The volume contains a large number of illustrations, of which 100 have been drawn specially for the work by Mr. Dixon. Most of these are good, but the "process" system has resulted in a flat appearance which is not altogether attractive. In this they contrast with some excellent woodcuts borrowed from past numbers of *Nature* and offer an instructive example of the failure of any mode of text illustration as compared with the now unfortunately almost decayed art of wood-cutting. The figures are perhaps a little too unequally distributed among the groups of the mammalia. The whales, for instance, have come off very poorly, while the dog tribe has rather more than its share. The anatomical side of the subject is fairly copiously illustrated, a large series of the figures of bones being borrowed from the late Sir William Flower's "Osteology of the Mammalia." With such accurate figures available it would have been a waste of money and energy to prepare a new series.

LIBRARY TABLE.

The Diseases of Women: a Handbook for Students and Practitioners. By J. BLAND-SUTTON, F.R.C.S. Eng., and ARTHUR E. GILES, M.D. Lond., F.R.C.S. Edin. Third edition, crown 8vo, with 145 Illustrations in the text. London: Rebman, Limited. 1902. Pp. 527. Price 11*s.* net.—The third edition of this book has been enlarged by 55 pages and the number of illustrations has been increased from 115 to 145. We hope that in the future the authors will attempt to conform to their own statement in the preface to the second edition—viz., "that the essential facts of the art can be presented in a very convenient compass," and will avoid as far as possible any further enlargement of what is at present a very handy book. The most important changes are to be found in the chapters upon Uterine Fibroids, Extra-uterine Pregnancy, Ovarian Tumours in connexion with Pregnancy, Labour, and the Puerperium, and Cancer of the Uterus. The term "myomata of the uterus" has been abandoned in favour of the more generally used but equally inaccurate expression "fibroids of the uterus." The chapters upon this subject have been rearranged and considerably added to and amended. In the part of the book devoted to Extra-uterine Gestation due mention is made of recent investigations in regard to ovarian pregnancy. This section retains the high excellence of former editions. We are glad to see that the important subject, cancer of the uterus, has been more fully and adequately dealt with, separate chapters containing a number of new illustrations being devoted to cancer of the cervix and of the body of the uterus. Ovarian tumours complicating pregnancy and labour are very fully discussed and the most important part of Mr. Bland-Sutton's recent admirable lecture upon the subject has been incorporated. The book has been well revised and, we think, improved, and if it still suffers from the marked surgical bias of its authors it is yet a good and trustworthy text-book.

A Manual of Otology. By GORHAM BACON. Second edition, with 114 Illustrations and three Plates. London: Henry Kimpton. 1901. Pp. 428.—The introduction is by Dr. C. J. Blake and opens for some occult reason at page 17, thereby adding this number of fictitious pages to the volume. As an observer Dr. Bacon is well gifted, but as an analyser he seems to be less so, and on reading the book the impression is given that his idea of a "manual" is the recording of clinical lectures, illustrative cases being freely scattered throughout. These, excellent as they are in clinical

teaching, are quite out of place in a book like this, which should lay down precise and definite directions for the diagnosis and treatment of disease. Not only is this so but the text is needlessly involved. For example, a portion of the symptoms appear under their proper heading and the remainder are given in other parts. At times matter quite foreign to the point under discussion is inserted. An instance of this will be found on page 164 et seq.; under acute purulent otitis media is a full description of a case of primary malignant disease with illustrations of microscopical sections and a reproduction of a photograph showing the facial palsy, whereas the mention of the danger of mistaking early malignant disease for acute otitis would have sufficed. Not infrequently the wording and arrangement of the text are such that an impression is conveyed quite different from that which the author intended to give, as in the treatment of acute catarrhal inflammation of the middle-ear, where it is recommended in young children to search for adenoids and if present to remove them with the finger-nail (p. 150), whilst on p. 181 we are told that the surgeon should never operate for adenoids if there are symptoms of acute otitis media. The book contains many good practical points which are unfortunately lost owing to the casual way in which it is arranged.

Analytical Records
FROM
THE LANCET LABORATORY.

ACETOZONE.

(PARKE, DAVIS, AND CO., 111, QUEEN VICTORIA-STREET, LONDON, E.C.)

ACETOZONE possesses remarkable germicidal powers and it is said that a solution of this substance of the same germicidal efficiency as a 1 per 1000 solution of corrosive sublimate may be safely taken internally in large quantities. This remarkable statement about acetozone will no doubt arrest attention. It is a true chemical compound and in reality benzoyl-acetyl-peroxide, a crystalline substance soluble in oils, ether, chloroform, and slightly in alcohol. Its antiseptic property is no doubt due in part to the parent group of the molecule and in part to the fact that it yields peroxide of hydrogen by hydrolysis. The specimen which we received consisted of acetozone mixed with an equal weight of inert absorbent powder. The powder is characterised by a pungent acetous smell. Acetozone has been employed in typhoid fever and in other diseases due to bacteria or the organisms of fermentation and in which it is possible to bring the action of the antiseptic to bear upon the infected area. We found that acetozone powder left in contact with water gradually develops free peroxide of hydrogen and a smell resembling ozone may be observed. Messrs. Parke, Davis, and Co. own that further clinical experience is required to establish the exact value of acetozone and they express themselves willing to furnish qualified medical men, who can conveniently undertake the work, with specimens of this substance for the purposes of investigation. It certainly claims a trial.

HOPOGAN POWDER AND TABLETS.

(KIRCHHOFF AND NEIRATH, BERLIN, N. AM KUPFERGRABEN, 6.)

In the letter from our New York correspondent, published in THE LANCET of July 26th, 1902, p. 252, appeared a note upon a new preparation termed Hopogan or Biogen, which in reality is pure dioxide of magnesium which appears to have been prepared in a pure state quite recently for the first time. We have received specimens of this substance as prepared for medical administration. The powder practically contains pure magnesium dioxide and is free from metallic impurities or alkalies. It is not soluble in water but on the addition of hydrochloric acid some oxygen is evolved and peroxide of hydrogen and chloride of magnesium are found in the solution. Tablets are prepared containing eight grains of the pure dioxide in milk sugar. It is proposed to administer magnesium dioxide in cases of deficient oxidation of the blood and already some encouraging results are stated to have been obtained. The preparation, we think, should receive some attention, as affording a method of administering oxygen internally which has not been convenient before, since other peroxides are unsuitable for the purpose.

FERROLEUM.

(THE FERROLEUM CO., 26, CLERKENWELL-ROAD, LONDON, E.C.)

This is a successful combination of the well-known valuable remedies cod-liver oil, iron, and phosphorus. The formula is no secret and our analysis showed the presence and amount of constituents as described. The following were the results: moisture, 47·81 per cent.; oil with traces of phosphorus, 40·00 per cent.; pure glycerine, 10·76 per cent.; phosphate of iron, &c., 1·43 per cent. The iron is present in a suitable form, being readily absorbed whilst not giving rise to the disagreeable effects of ordinary iron salts. The emulsion though tasting of cod-liver oil is less disagreeable to take than raw non-emulsified oil. The preparation is a good one and of distinct therapeutic value having regard to its constituents and the particular form in which they are presented. The association of an easily assimilable oil in a fine state of division with a phosphatic salt of iron which does not disturb the digestive functions and which is easily tolerated determines the success of the preparation as a food and tonic in wasting diseases.

STERULES.

(WILLIAM MARTINDALE AND CO., 10, NEW CAVENDISH-STREET, LONDON, W.)

The convenience of "sterules" is obvious. They simply consist of sterile capsules of eye-drops. "Sterules" are thus prepared containing solutions of definite strength of the salts of atropine, cocaine, euphthalmine, homatropine, physostigmine, and pilocarpine. This method of preserving eye-drops is excellent.

ODOL.

(ODOL CHEMICAL WORKS, 26, SOUTHWARK BRIDGE-ROAD, LONDON, S.E.)

We called attention in THE LANCET of July 26th, p. 224, to the peculiar antiseptic properties of odol which render it useful for the purposes of a mouth-wash. It was then pointed out that it contained a definite oily compound of phenol and salicylic acid. It is important to note that this compound is not the crystalline derivative salol, but the curious yellow oil present, though not itself antiseptic, splits up into phenol and salicylic acid when in contact with the mucous membrane or the saliva. It is this property which makes odol a very efficient antiseptic for the mouth. In discussing analytically the previous sample sent to us we noted a flavour of peppermint. In the sample since received this flavour is not so much in evidence, that of oil of roses, which to many persons is more agreeable, being substituted.

(1) BEEF TEA; AND (2) CHICKEN BROTH.

(FRANCO-AMERICAN FOOD CO., JERSEY CITY HEIGHTS, N.J.)

Both these preparations are of a very limited nutrient value since the total amount of solid matter in the beef-tea was found to be only 2·75 per cent. and in the chicken soup 3·22 per cent. The amount of proteid in the former was quite small, while the latter contained a slightly greater proportion. Taking into regard, however, the total solid constituents of the preparations, both of which are clear fluids, we can admit of no special food value attaching to them.

VARIOUS BORDEAUX WINES.

(AGENCY: MACMINN, RICHARDSON, AND CO., 11, HART-STREET, MARK-LANE, LONDON, E.C.)

The wines now described with our analyses appended are stated to come from "the celebrated Vergniaud Cellars in

Bordeaux." They are offered at reasonable prices from 18s. per dozen upwards. The following are the results of our examination of the various samples submitted to us and our observations based on these results. Claret V.D. 0 (60s.): alcohol, by weight 10·85 per cent., by volume 13·43 per cent., equal to proof spirit 23·54 per cent.; extractives, 2·44 per cent.; mineral matter, 0·26 per cent.; sugar, 0·16 per cent.; volatile acids reckoned as acetic acid, 0·108 per cent.; and fixed acids equal to tartaric acid, 0·262 per cent. This wine is described as "Chateau Mouton Rothschild" and its excellent character is in keeping with the renown of this celebrated "chateau." It is an elegant wine, delicate, free from excessive acidity, containing a minimum of sugar. Claret V.D. 1 (44s.): alcohol, by weight 10·85 per cent., by volume 13·43 per cent., equal to proof spirit 23·54 per cent.; extractives, 2·28 per cent.; mineral matter, 0·24 per cent.; sugar, 0·14 per cent.; volatile acids reckoned as acetic acid, 0·12 per cent.; and fixed acids reckoned as tartaric acid, 0·22 per cent. This wine is from the Chateau Montrose and its analysis is in some respects similar to the previous wine; it is sound and pleasing. Claret V.D. 2 (36s.): alcohol, by weight 10·08 per cent., by volume 12·49 per cent., equal to proof spirit 21·89 per cent.; extractives, 2·34 per cent.; mineral matter, 0·24 per cent.; sugar, 0·16 per cent.; volatile acid reckoned as acetic acid, 0·102 per cent.; and fixed acids reckoned as tartaric acid, 0·262 per cent. This wine is described as "Chateau Talbot" and, as will be seen, is slightly less alcoholic than the previous wines. It possesses excellent bouquet and flavour and shows a minimum degree of acidity and a negligible amount of sugar. Claret V.D. 3 (28s.): alcohol, by weight 10·85 per cent., by volume 13·43 per cent., equal to proof spirit 23·54 per cent.; extractives, 2·47 per cent.; mineral matter, 0·24 per cent.; sugar, 0·16 per cent.; volatile acids reckoned as acetic acid, 0·096 per cent.; and fixed acid reckoned as tartaric acid, 0.225 per cent. This is "Larose" claret, an agreeably light and practically non-acid wine. Claret V.D. 4 (23s.): alcohol, by weight 12·38 per cent., by volume 15·30 per cent., equal to proof spirit 26·83 per cent.; extractives, 2·71 per cent.; mineral matter, 0·27 per cent.; sugar, 0·17 per cent.; volatile acids reckoned as acetic acid, 0·072 per cent.; and fixed acids reckoned as tartaric acid, 0·285 per cent. This is St. Julien (Adet), a somewhat heavier wine than those previously described, but sound and non-acid, and practically free from sugar, with a satisfactory flavour. Claret V.D. 5 (18s.): alcohol, by weight 10·85 per cent., by volume 13 43 per cent., equal to proof spirit 23·54 per cent.; extractives, 2·67 per cent.; mineral matter, 0·27 per cent.; sugar, 0·21 per cent.; volatile acids reckoned as acetic acid, 0·078 per cent.; and fixed acid reckoned as tartaric acid, 0·307 per cent. This is a wine from the Margaux district; it is somewhat fuller in character than the others but a genuine, pleasing wine. V.D. Chablis (26s.): alcohol, by weight 10·85 per cent., by volume 13·43 per cent., equal to proof spirit 23·54 per cent.; extractives, 2·62 per cent.; mineral matter, 0·26 per cent.; sugar, 1·20 per cent.; volatile acids reckoned as acetic acid, 0·084 per cent.; and fixed acids reckoned as tartaric acid, 0·42 per cent. This is a "clean" wine with the well-known characteristics of Burgundy (blanc), containing distinctly more sugar than the clarets while its alcoholic strength is the same. V.D. Volnay (36s.): alcohol, by weight 13·15 per cent., by volume 16·42 per cent., equal to proof spirit 28·46 per cent.; extractives, 2·69 per cent.; mineral matter, 0·24 per cent.; sugar, 0·21 per cent.; volatile acids reckoned as acetic acid, 0·03 per cent.; and fixed acids reckoned as tartaric acid, 0·20 per cent. This is a quite sound Burgundy, with practically no acidity; a somewhat "robust" and palatable wine. V.D. Pommard (28s.): alcohol, by weight 12·38 per cent., by volume 15·30 per cent., equal to proof spirit 26·82 per cent.; extractives, 2·74 per cent.; mineral matter, 0·20 per cent.; sugar, 0·23 per cent.; volatile acids reckoned as acetic acid, 0·102 per cent.; and fixed acids calculated as tartaric acid, 0·262 per cent. A well-known wine with a "vigorous" composition, soft to the palate, and in sound condition. V.D. Beaune (23s.): alcohol, by weight 11·62 per cent., by volume 14·37 per cent., equal to proof spirit 25·18 per cent.; extractives, 2·90 per cent.; mineral matter, 0·25 per cent.; sugar, 0·30 per cent.; volatile acids, 0·102 per cent.; and fixed acids, 0·307 per cent. This is a somewhat full-bodied wine, but of comparatively low alcoholic strength, possessing the flavour of a sound Burgundy. V.D .0 Chateau-Yquem (60s.): alcohol, by weight 11·62 per cent., by volume 14·37 per cent., equal to proof spirit 25·18 per cent.; extractives, 4·68 per cent.; mineral matter, 0·20 per cent.; sugar, 2·90 per cent.; acetic acid, 0·048 per cent.; and tartaric acid, 0·51 per cent. This is an excellent Sauterne evidently with some age. It is practically free from acidity and contains an appreciable amount of sugar, the taste being somewhat sweet. The flavour is full-bodied and excellent. V.D. 2. Haut Sauterne (36s.): alcohol, by weight 13·15 per cent., by volume 16·24 per cent., equal to proof spirit 28·46 per cent.; extractives, 3·59 per cent.; mineral matter, 0·28 per cent.; sugar, 1·66 per cent.; acetic acid, 0·18 per cent.; and tartaric acid, 0·337 per cent. This is a very agreeable wine of higher alcoholic strength than the last and with a small amount of sugar. The wine was in good condition. We are not aware of the respective vintages of the above wines but they are evidently selected from good years. They were all in fine condition, being characterised by a practical absence of acidity and a minimum of sugar and alcohol. We believe them to be pure natural wines and it is satisfactory to note that wines of such a class can be offered at moderate prices. In this interesting series of analyses of typical red and white wines it is interesting to observe that throughout the degree of acidity of the white wines was slightly in excess of the red wines, a result which is opposed to the views of some people. Moreover, the white wines, as a rule, contained more sugar than the red wines, though in no case was the amount excessive. These results as regards Bordeaux white and red wines agree with those published by THE LANCET Commission on the Medical Use of Wines in THE LANCET of 1880,[1] and our Commissioners were led to point out the advantages of clarets over white wines in regard to acidity and sugary contents, especially for those suffering from diabetes or gout.

V.O. BRANDY.

(LUCIEN-FOUCAULD AND CO., COGNAC. LONDON: E. W. LAWTON AND CO., HOPETOUN HOUSE, LLOYDS-AVENUE, CRUTCHED FRIARS, LONDON, E.C.)

As the following analysis shows, this spirit presents characteristics typical of genuine matured brandy produced in the Cognac district: alcohol, by weight 44·18 per cent., by volume 51·82 per cent., equal to proof spirit 90·81 per cent.; extractives, 1·47 per cent.; mineral matter, 0·03 per cent.; total acidity reckoned as acetic acid, 0·06 per cent.; alcohol, in ethers, 0·21 gramme per litre; aldehyde, 0·020 gramme per litre; and furfural, 0·005 gramme per litre. The taste is agreeably smooth though somewhat sweet, a small proportion of burnt sugar being detected in the extract. We are of opinion that this is a genuine matured Cognac brandy.

CORONATIA SOAP.

(MESSRS. COOK AND CO., EAST LONDON SOAP WORKS, BOW, LONDON, E.)

We found this to be a good bland soap free from irritants and alkaline excess. A feature of the soap is that though scented it imparts only a suspicion of perfume to the skin.

[1] THE LANCET, June 26th (p. 1001), July 3rd (p. 17) and 24th (p. 145), and Oct. 23rd (p. 660), 1880.

New Inventions.

A NEW VACCINATOR.

I WISH to bring before the notice of the profession a vaccinator which I have had made. As shown in the engraving it has a fork at one end, while at the other end there is a spatula. The scarification can be performed more quickly

with this vaccinator than with a single-bladed instrument, as four parallel scratches are made at a time. It can easily be sterilised by boiling as it consists entirely of steel and is all in one piece. It has been made for me by Messrs. Down Bros., of 21, St. Thomas's-street, London, S.E.

L. C. S. BROUGHTON, L.R.C.P. & S. Edin.,
Public Vaccinator, Oldbury No. 1 District,
West Bromwich Union.

PERITONEAL SUTURE-CATCHER AND ADJUSTER, WITH A DESCRIPTION OF THE METHOD OF SUTURE WHICH IT FACILITATES.

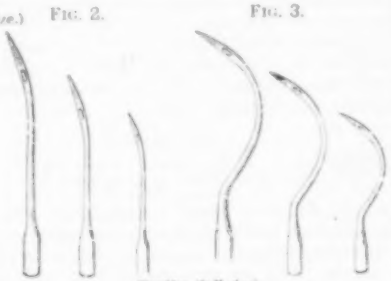
THE purpose of this instrument (Fig 1) is to facilitate suturing (with needles having eyes at the point, as in Figs. 2 and 3) in places otherwise inaccessible, where there is no room to carry an ordinary needle in and out, and where even transverse suturing with a needle having the eye at the point and mounted in a holder in the usual way is difficult to carry out—e.g., a perforated gastric ulcer at or near the cardiac end of the lesser curvature and situated consequently high up under cover of the liver and the ribs.

FIG. 1.

(Full size.)

Figs. 4, 5, and 6 represent such a perforation which occurred in my own practice. On attempting to pass a suture transversely the point of the needle was buried in the under surface of the liver almost as soon as it emerged from the surface of the stomach. It was found possible

FIG. 2. FIG. 3.

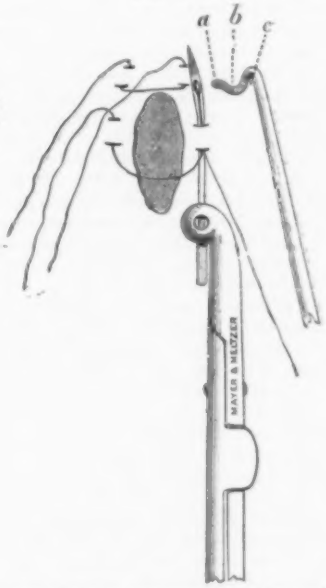


Needles (full size).

to lay a suture only in the line of the needle-holder. This was done first on one side of the perforation, then on the other, as shown in the diagram, a device which has no doubt been repeatedly adopted by other surgeons in similar circumstances. Considerable difficulty was, however, experienced in disengaging the suture from the needle with fine forceps and other instruments at hand which led subsequently to my designing the little instrument shown in Fig. 1. Its use in this method of suturing will be seen at a glance. The flattened point (*a*) at right angles to the shaft lifts one loop of the suture off the needle (Fig. 4). The hook with the concavity (*b*) upwards enables the loop to be held *in situ* while the needle is withdrawn (Fig. 5), while the hook with the concavity towards the handle (*c*) draws the free end of the suture through (Fig. 6). It will be noticed that each suture placed as indicated is practically equivalent when tightened up to two ordinary Lembert's sutures. Furthermore, it has less tendency to cut out, inasmuch as when tightened the traction strain is equal at both ends of each puncture channel instead of being all thrown upon the outer extremity of the channel, as is the case when the needle is introduced transversely.

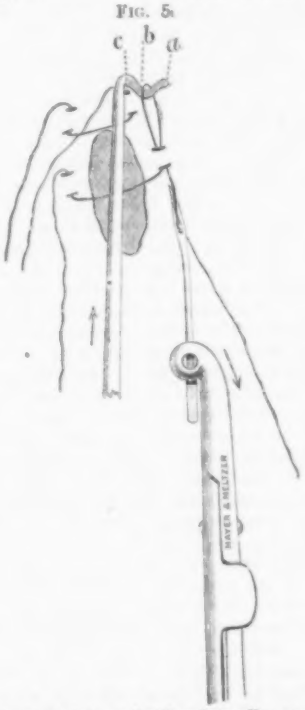
The needles are curved on the flat with the eyes at the

FIG. 4.



points and are made in two curves and three lengths as shown in Figs. 2 and 3. The only special point about them

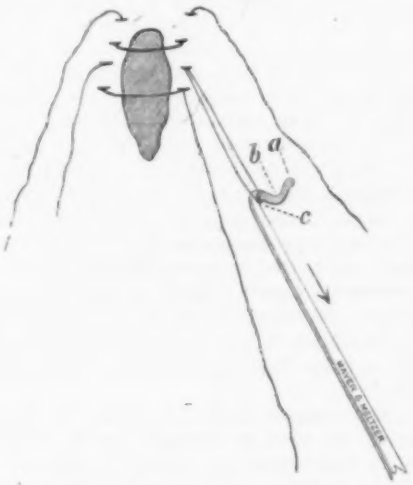
FIG. 5.



is that the butt is flattened either laterally, as shown in the illustration, or antero-posteriorly. They can thus be readily

and firmly adjusted to, and set at any angle in, the needle-holder.

FIG. 6.

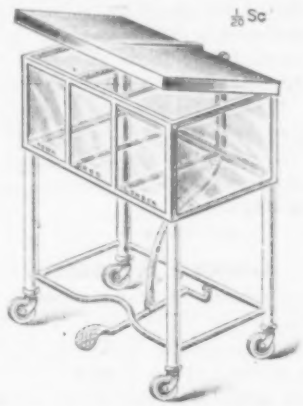


The instrument and needles were made by Messrs. Mayer and Meltzer of Great Portland-street, London, W.

W. F. BROOK, F.R.C.S. Eng.,
Senior Surgeon to the Swansea General Hospital.

A NEW ASEPTIC CABINET.

THE illustration shows a new form of aseptic cabinet for dressings made for use in the Sussex County Hospital at the suggestion of Mr. C. N. Chadborn. The cabinet is made of glass and metal throughout and is white enamelled. Being fitted on ball-bearing castors it runs easily and noiselessly up



and down the ward, and possesses the advantage that the nurse can dress a case single-handed, as after the hands have been made aseptic the lid is opened by the foot by means of the lever, rendering it unnecessary to touch the cabinet with the hands. Messrs. Down Bros. of 21, St. Thomas's-street, London, S.E., are the makers.

ACCIDENT TO A MEDICAL PRACTITIONER.—On August 25th Dr. Mary Helen Cruikshank of Portland-place, Reading, while driving home in a light cart from the railway station was thrown out with great violence on the roadway where she lay unconscious. Dr. William J. Maurice and Dr. Martha F. Armitage, who were quickly in attendance, found that she had sustained concussion of the brain. Consciousness was regained in the course of the day and the subsequent history of the case has fortunately shown a gradual improvement.

Looking Back.

FROM

THE LANCET, *SATURDAY, SEPT. 4,* 1824.

To the Editor of THE LANCET.

SIR,—It was with much pleasure that I read two letters in your publication of the 17th and 31st of the last month, relative to the inattention shown by the surgeons of St. Thomas's Hospital to the students attending there: inattention so long continued, and so frequently the subject of animadversion and dissatisfaction among the students themselves, that I am surprised that public notice has not been taken of it at an earlier period.

The fame which St. Thomas's and Guy's Hospitals have acquired is not unknown to the officers of these establishments, and to this circumstance, it may be feared, is to be attributed, in some degree, the neglect complained of, and which has now become so glaringly manifest.

Be this as it may, every consideration demands that it be rectified as speedily as possible, and that conduct so unworthy of surgeons and teachers be superseded by a behaviour more congenial and better adapted to advance the improvement of the pupil. The interest of the parent calls loudly for this, who is at an enormous expense in enabling his son to prosecute his studies there, and is blindly led to believe, that every facility is afforded of doing it with advantage; the interest of the son, who gives his attendance for the purpose of gaining information; but which he has the mortification of finding, when too late, to be extremely superficial and partial; and lastly, the interest of the public, on whom, in after time, this flimsy knowledge is to make its dangerous experiments.

What are the opportunities which the student possesses there of becoming acquainted with the character and treatment of disease? why, I know of none, and I speak candidly, except it be the privilege of running up and down, from ward to ward, after the surgeon, and hearing, or rather seeing, him whisper to one or two gentlemen at his elbow, who are generally his own dressers or acquaintances, and who rudely push their way through the other students, to get to that situation. The majority of the pupils may look and stare, as long as they please, but all to no purpose. If it be endeavoured to make up for this, by having recourse to the Hospital books, in order, as one of your correspondents expresses it, "to catch what he can," he is still disappointed; for there he does not find the slightest clue to direct him in forming an opinion, as to the nature of any cases on which he wishes for information, no name of the disease, and no report of any kind. Prescriptions only meet the eye, and these are in writing so obscure, that not unfrequently all attempts to unravel them prove unavailing. One is apt to think, on looking at them, that there was some prize at stake, for which the surgeons were contending, and which was to be awarded to that competitor who wrote worst. In short, there is such mystery pervading the whole that it is impossible for a student to reap any benefit from attending that institution.

When Sir ASTLEY COOPER goes round the wards of Guy's Hospital, he directs the attention of the pupils to any case of interest that presents itself to his notice, and in a voice so audible as to be distinctly heard by every one of them. Thus he fulfils the engagement into which he enters the moment the fee of the student is received. This honourable conduct on his part is fully appreciated, and hence it is, as well as from his eminent abilities, that his visits are so much desired and longed for. But, Mr. Editor, is not the same duty imperative on the other surgeons? Do they not receive the pupils' money as well as Sir A. COOPER? they do, and therefore are equally bound to make a suitable return, which they cannot be said to have hitherto done. If any thing more than another be calculated to act as a reproof to these gentlemen, it is the open, fair, and honourable behaviour of Sir A. COOPER.

You have done much, Mr. Editor, towards putting down some of the abuses connected with this hospital, and I trust you will yet do more. There is a wide field before you, and your labours can scarcely be more advantageously or fitly employed than in clearing it of its weeds.—Go on in the work, and you shall earn the gratitude of every impartial and honest man, and greatly befriend.

Sir, Your obedient Servant,

August 13, 1824. R.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 6, 1902.

The Cremation Act.

AN Act of Parliament to be known as the Cremation Act, 1902, and to be applied to England, Wales, and Scotland, but not to Ireland, received the royal assent on July 22nd last and will come into force on April 1st, 1903, in order to enable public authorities charged with the duty of providing for the burial of human remains to provide for the disposal of them by burning. The text of the Act will be found at p. 700. Public opinion has to a great extent become accustomed to this method of dealing with the dead since the outcry which greeted the sporadic and experimental burning of bodies in the early "eighties." Many have almost forgotten that at that time the legality of cremation was questioned even by the legal advisers of the Government, and that the projected construction of a properly-equipped crematorium by those interested in the movement was abandoned owing to the attitude of the Home Office. This state of things was only put an end to when Mr. Justice STEPHEN, in charging the grand jury called on to consider the indictment against a man named PRICE in Wales (R. *v.* PRICE, 12, Q.B.D., 247), made a careful and exhaustive survey of the laws and customs relating to the treatment of human remains so far as these were relevant to the subject before him, and drew the conclusion therefrom that the person who burnt a dead body instead of burying it did not commit a criminal act unless he did it in such a manner as to amount to a public nuisance at common law. At the same time he added, with particular reference to the case before him, although to burn a dead body decently and inoffensively is not criminal it is obvious that if it is done in such a manner as to be offensive to others it is a nuisance of an aggravated kind. Sir FITZJAMES STEPHEN went into the matter with his usual thoroughness and courage, and no one, so far as we are aware, has ever questioned the authority of his opinion, but the new statute gives formal legal sanction to cremation by providing that "the powers of a burial authority to provide and maintain burial grounds or cemeteries, or anything essential, ancillary, or incidental thereto, shall be deemed to extend to and include the provision and maintenance of crematoria." The plans and sites of these crematoria are to be subject to the approval of the Local Government Board; restrictions are imposed with regard to their propinquity to dwelling-houses and to public highways, and the Home Secretary, who will have to be satisfied that they are properly constructed and equipped, will make regulations for their conduct, maintenance, and inspection.

A section in the Act provides not only against breaches of its regulations, but imposes heavy penalties with a view to the mitigation of those dangers which, in the present state of the law as to death certification, must in some degree be increased by the possibility of quickly and completely destroying human remains. Under this section every person who shall wilfully make any false declaration or representation, or sign or utter any false certificate with a view to procure cremation of a body, shall be liable to a sentence of two years' hard labour, and every person who shall procure or attempt to procure the same object with intent to conceal the commission, or to impede the prosecution, of any offence shall be liable to penal servitude for five years. At the same time nothing in the Act is to interfere with the jurisdiction of coroners or to sanction the creation of a nuisance, and the scruples of those who are opposed to cremation from a religious point of view are protected by the provision that the incumbent of a parish shall not be under any obligation to perform a funeral service before, at, or after the cremation of the remains of his parishioners, but power is given to call in other clergymen on such occasions if it be desired.

We have sketched above the outline of a statute which will no doubt in process of time be usefully applied in those districts where lack of space and overcrowding of the living render the safe and economical disposal of the dead a matter of difficulty and where the introduction of cremation by private enterprise would not be likely to command success. That such a measure should have been passed shows the gradual development of public feeling in the direction of sanitary improvement, while the delay that has attended it illustrates the necessity for the gradual rather than rapid education of public opinion where matters more or less of sentiment are involved. The medical profession has always taken a keen interest in all questions affecting the safe disposal of human remains, and with the introduction of cremation as a means to this end the names of Sir HENRY THOMPSON and Sir T. SPENCER WELLS (to mention no others) will always be indissolubly connected. Those of the pioneers of the movement who survive will, no doubt, view the new enactment with satisfaction and will do all they can to encourage its application where its adoption is likely to be useful and conducive to the public health.

Cancer Research.

THE Cancer Research Fund has now reached a pecuniary position which enables preliminary working arrangements to be taken into consideration by the Executive Committee, and on the decisions of the Executive Committee as to the lines on which the fund is to be administered depends very largely the degree of success which will attend the project—a project which has been honoured by the presidency of the PRINCE OF WALES and supported in liberal measure by money contributions from the general public. It is understood that the provisional scheme for the working of the fund which was considered by the Royal Colleges of Physicians of London and Surgeons of England suggested (1) the starting and equipment of special laboratories to be devoted entirely to research work bearing on the subject of cancer; (2) the encouragement of research work in connexion with cancer within the United Kingdom or in the British dominions beyond the seas;

(3) assistance in the development of cancer research work in various hospitals and institutions; and (4) the provision of means for systematic investigation generally into the causes, prevention, and treatment of cancer. A meeting of the Executive Committee has now been held and, as our readers are aware, it has been decided that a General Superintendent of Cancer Investigation shall be appointed to carry out the work much in accordance with this provisional scheme. We may with advantage briefly recapitulate what has been done in this country and abroad in the general direction of systematic research into the cause of cancer before we consider the special task that lies before the Executive Committee of the Cancer Research Fund.

The Cancer Research Laboratories of the Middlesex Hospital were the first special laboratories to be founded in this country for the study of malignant disease. In 1899 the staff of the hospital drew up a scheme which included the foundation of the laboratories, the constitution of a Cancer Investigation Committee, and the appointment of a special staff for carrying out the work. The Cancer Research Laboratories were opened for work in the beginning of 1900 and the first volume of reports is just announced. The next organisation founded to deal specially with cancer research was the German Comité für Krebsforschung, which was constituted in 1900 with Professor VON LEYDEN as President and Professor GEORGE MEYER as general secretary. The Comité includes two vice-presidents, seven honorary members, nine foreign members, and 62 German members. The foreign members include three representatives from this country, two from France, and one each from Egypt, the United States, Japan, and Russia. The German members include all those who in that country have been specially identified with the investigation of malignant disease. The Comité occupies itself mainly as an administrative body, to encourage and to assist financially individual research work in immediate connexion with the causation of cancer, to collect and to tabulate information bearing on the subject, and to further generally the advancement of scientific knowledge in connexion with cancer. The maintenance of laboratories of its own does not enter into the working scheme. The Comité is so far recognised by the State that its meetings are held at the offices of the Ministerium des Inneren, and it receives an annual grant of 5000 marks from the Government. The first volume of *Verhandlung des Comités für Krebsforschung* (heft i., 1900–1902) has recently been published in Berlin. Other special cancer research laboratories have been founded on similar lines to those of the Middlesex Hospital. In Germany there are two under the direction of Professor VON LEYDEN and Professor EHRLICH respectively. The former laboratory is worked in connexion with Professor VON LEYDEN'S special cancer ward at the Charité Hospital in Berlin which contains 34 beds and is supported by the State at an annual charge of 53,000 marks. Professor EHRLICH'S cancer laboratory is in Frankfort and is supported by private contributions. In the United States the first cancer research laboratories were those at Buffalo, which are now under the Department of Health of the State of New York and which have been materially assisted by private benevolence. A legacy from CAROLINE BREWER CROFT enabled the Cancer Committee to the Surgical Department of the Medical School of Harvard University to organise a commission of pathologists to carry on special research work in connexion with cancer in the pathological laboratories of the university. This commission issued a short preliminary report in October, 1900, and a fuller one in February of this year. In addition to these purely scientific bodies cancer leagues and societies constituted on semi-popular lines have come into existence with the object of educating the public generally as to the importance of cancer research. Of these schemes some are less wise than others, but all have a good object and should therefore be regarded by medical men with broad sympathy.

It will thus be seen that work which is already in progress indicates with some clearness certain of the lines on which the Executive Committee of the Cancer Research Fund may proceed. It may support research work in cancer in pathological laboratories already existing in the London and provincial medical schools, from which laboratories the pathological work on which the scientific reputation of this country depends has hitherto gone out; it may, in addition, maintain a central bureau for the collection and tabulation of the results of laboratory research work and of other investigations bearing on the causation of malignant disease; it may establish new laboratories apart from the medical schools and carry them on under its own supervision. The Executive Committee will proceed early in October to appoint a General Superintendent of Cancer Investigation, and it will be seen that the duties of the office, detailed in our advertisement columns on August 9th, foreshadow the direction in which a start will be made. These duties include: (1) the general direction of laboratory investigation; (2) the supervision of workers appointed by or receiving grants from the Committee; (3) the collection of statistical, dietetic, topographical, and other information; (4) the organisation of a system of correspondence with colonial, Indian, and foreign laboratories and workers; and (5) attendance at the meetings of the Executive Committee or any committees appointed by them for special purposes relating to the investigation. With regard to the establishment of new laboratories, it is to be hoped in the interests of British pathology that no hasty decision will be arrived at. The General Superintendent may also be appointed Director of the Central Laboratory, but unless this laboratory be in connexion with a general hospital the work there should be rather critical and generally supervisory. The results obtained up to the present time by pathological laboratories endowed for research work independently of connexion with sources from which to draw their supplies of necessary material, have not been such as to encourage the endowment of others of a similar kind. And the institution of new laboratories for cancer research work, unless such laboratories were intimately connected with general hospitals from which an adequate supply of material for investigation could be readily obtained, would be a mistake. The opinion of those who from practical experience are familiar with the actual necessities of laboratory research work is, we believe, unanimous on this point. What has been done at the Middlesex Hospital with the help of its Cancer Research Fund could be done at other of the large London hospitals if the necessary financial support from the executive committee of the Cancer Research Fund were given. At the great general hospitals of the metropolis and the large

provincial towns there is, alas, a practically unlimited supply of material directly at hand. If the laboratories attached to these institutions were used there would be no necessity for the Cancer Research Fund to spend money on laboratory accommodation or on a large staff; the laboratory accommodation already available would be ample and the leading pathologists in the country could be utilised for the direction of any research work. And it may safely be said that a sum of £1000 or £1500 judiciously distributed among existing hospital laboratories would enable the committee to show better results for the expenditure of the funds entrusted to it than thrice that amount spent in maintaining laboratories where ordinary facilities for obtaining material for investigation might be wanting. Nor are economy and the certainty of obtaining plenty of material whereon to work the only, or even the principal, advantages of carrying on such research in laboratories attached to general hospitals. Another great advantage is that those engaged in research in connexion with cancer would have the benefit of constant contact with colleagues engaged in research work on other lines, and so there would be no danger of work being nullified by the narrow specialism which would inevitably beset workers dealing with only one form of disease and isolated from their fellows. A further argument in favour of distributing the research work over a rather wide area is that there would be less danger of the work following one groove too closely. In every laboratory the trend of research work is mainly controlled by the opinions of the responsible head. With regard to the causation of cancer there is at present so wide a divergence of opinion that it would be unfortunate if research work were confined to too narrow a field. By all means let there be a central bureau for the comparison and codification of results, but let the foci for gaining information be reasonably numerous and let the workers at these foci have a free hand. Their results should be brought into line by the central authority, but the directions of their labour should be left largely to themselves.

The care which has been displayed in the preliminary stages by the promoters of the scheme, and the Royal support afforded to the two English Colleges in this matter, give every reason to hope that a national scheme of investigation will be drawn up in which the voice of those especially connected with pathological research work will carry due influence. One of the best informed and ablest pathologists in our country, the professor of pathology in Cambridge University, is a member of the Executive Committee. This is in itself a guarantee that the real needs of the working pathologist, if his research is to have a fair chance of bearing fruit, will be clearly placed before the Executive Committee. We trust that the Executive Committee will see the whole question of cancer research as the working pathologist sees it and will, in the first place, stimulate the labours of our well-established laboratories and assist processes of inquiry already commenced. Nor must it be forgotten that although the inquiry at first will be directed mainly to the pathological aspect of the question, the clinical side must also take the important position it merits. The assistance of the large general hospitals will then become a necessity. It would be manifestly advantageous to the progress of the investigation for the physicians, surgeons, and pathologists of the same institution to work together. In this way results may be obtained which will justify the influential support which has been afforded and which will encourage the further endowment of the work.

The Prevention of Cruelty to Children.

THE council of the National Society for the Prevention of Cruelty to Children is to be congratulated on the report of the society's progress during the year 1901–1902. Thirty-seven new centres of work have been added to those already in operation, the whole number being now 877, or, with those in Scotland included, 924. The annual income has been increased by £1807 and there is a balance in hand of £231 after payment of the year's expenses. There are, however, arrears of debt incurred in less prosperous years amounting to £7151. As mentioned by us in a previous issue, the society has been able, chiefly through the generosity of two of its supporters, to open new central offices. The *modus operandi* of the society is explained with much clearness in this report. Its primary object is, of course, the protection of children, but it does not seek to attain this object by a blind and mechanical application of its legal powers. Nor does it even seek this desirable end alone. Recognising in cruelty something morbid and at variance with the normal domestic order it deals with it as such. Accordingly, while affording protection, and if needful by extreme measures, it is not forgetful that home conditions have to be improved if the children's happiness is to be more than temporary. It is, we think wisely, averse to any system of permanent removal, even from poor homes, if this can be avoided, and it therefore devotes its energies largely to the task of so reforming the manner of life in such homes as to make them at least decently habitable. This ought not to be too high an ideal for attainment and it has not proved to be unattainable. Even where parents have been imprisoned for their misconduct we are informed that in the vast majority of cases children have been restored to them and further supervision has revealed an alteration in the domestic life of the family and a return to natural, that is to humane, conditions. Furthermore, the interest of neighbours is enlisted and a species of local public opinion in favour of fair-play to the children is encouraged. Thus the operations of the society may be said to be conducted in accordance with the *vis medicatrix naturæ*, and they appear to be rather appreciated than resented even by the delinquent parents themselves. It is suggested in the report that if the educative principle were more freely employed in home life in relation to such other evils as the various forms of juvenile depravity the costly machinery of industrial schools and reformatories might be to a great extent dispensed with. Whether, and if so how far, this arrangement is a possible one is still an open question. The suggestion that such works of social reclamation should utilise the family tie as far as possible and should, other things being equal, prefer a more natural to a more artificial method of procedure is at all events worthy of consideration.

Among other matters discussed at the annual meeting of

the society was that of the protection of nurse children. It is generally understood that the existing law on this subject does not go nearly as far as is required for its full efficiency. It does not cover the case of single nurse children or of children for whose maintenance a sum of £20 is paid. We confess that we have never been able to discover any reasonable justification for the exception in either case. These children obviously stand in no less need of supervision than do others of the same age entrusted to the hands of strangers, for neither money nor isolation can provide a guarantee for good treatment. It is highly satisfactory to find that an amendment promoted by the society expressly aims at the abolition of this distinction which can only be regarded as a blot upon an otherwise useful Act. An objection has, we understand, been brought forward by a body known as the Rescue Society of London on the ground that certain women who act as nurses dislike inspection. In view of the obvious necessity for the proposed amendment we trust that no such unreasonable opposition will be suffered either to defeat its intention or to weaken its effect by qualifying concessions.

The Work of the Government Laboratory.

THE Government laboratory fully justifies its creation and maintenance. Time was when it was considered that apart from Customs and Excise a practical chemical laboratory could play but a small rôle in the administrative affairs of the country. The report of the principal chemist upon the work of the laboratory for the year ended March 31st, 1902, abundantly shows how important it is that the Government should have its own chemical advisers and laboratories. The total number of analyses and examinations made at the laboratory in Clement's Inn Passage in the year ended last March was no less than 80,421. Of these, 64,152 were due to revenue departments and 16,269 to other departments, such as the Admiralty, the Board of Trade, the Board of Agriculture, the Local Government Board, the Home Office, the Post Office, and the War Office, and the number of samples referred under the Sale of Food and Drugs Act was 119. As to the work of the Customs branch of the Government laboratory, it has more than doubled in magnitude during the past year, the actual number of samples submitted for test being 64,560, as against 34,434 in the preceding year. The increase is thus about 3000 samples and is due chiefly to the imposition by the Budget of April, 1901, of duties on sugar and cognate substances and on the numerous articles in the manufacture of which these substances are used. On account of this extra pressure on the resources of the laboratory the accommodation as well as the staff had to be increased. Two new laboratories were fully equipped on the lines of the Government laboratory at Clement's Inn and the staff was increased by the appointment of eight temporary chemical assistants. The work of the department was further relieved by the adoption of fixed rates of duty based on analytical data for certain articles of regular importation and fairly uniform composition as, for example, condensed milk and tinned fruits. The number of analyses and examinations made in the Excise branch of the Government laboratory during the year amounted to 80,893, or 8471 more than in the preceding year. In addition, a considerable amount of experimental work has been done in connexion with the subject of arsenic in beer and beer materials with a view of defining the limitations of chemical analysis as to the amount of arsenic it is possible to determine and as to what may be regarded as a mischievous quantity. As to tobacco, there has been a considerable increase in the number of samples examined, the increase amounting to no less than 325,729 pounds, the description showing the greatest increase being cake tobacco and cigarettes. Dr. THORPE remarks that the great increase in the weight of cigarettes exported shows that the practice of smoking tobacco in this form is still increasingly popular. The continued demand for cake tobacco was due to the war in South Africa. Some samples were found to contain liquorice, glycerine, or sugar. One instance of fraud is worth mentioning. Certain persons were discovered manufacturing an imitation tobacco which was found to consist of pinewood so shredded and stained as to resemble the tobacco used for making cigarettes. The full penalty of £200 was imposed. In connexion with other Government departments the number of samples examined was 6622, more than a third of them coming from the Board of Agriculture, a fifth from the Local Government Board, and about a fifth from the War Office.

During the year no imported sample of butter has been reported as adulterated with foreign fats, while in the previous year there were 15 adulterated butters. Boric acid preservative was present in all the samples of butter from South America, in 96 per cent. of those from Belgium, in 90 per cent. from Australia, in 86 per cent. of the French samples, in 77 per cent. of those from New Zealand, in 50 per cent. from Holland, and in 42 per cent. from the United States. Only 1 per cent. of Danish, 4 per cent. of Norwegian, 6 per cent. of Russian, 9 per cent. of Canadian, and 15 per cent. of the German samples contained this preservative. On the decision being made by the First Commissioner of Works that analyses should be conducted of the air in the House of Commons and that of the inlets Dr. THORPE arranged an investigation which was supplemented by a bacteriological examination. Accordingly, when the House had adjourned for dinner on March 13th, samples of air were taken at the Speaker's table and from the Members' gallery and the mixing chamber which supplies the fresh air. As a result it was found that the proportion of carbon dioxide present in the air of the debating chamber was not appreciably greater than is usually found in the air of rooms with several persons present, and though, as was to be expected, the number of organisms in the air of the lower part of the House was greater than in the air of the mixing chamber, yet in the Members' gallery, which is beyond the sphere of dust raised by the movement of persons, there was no such increase of organisms, and there was further a general absence of any organisms that could be identified as pathogenic or in any degree prejudicial to health. The work on fritts and leadless glazes has been continued, though not to the extent of previous years owing to the conclusion having been arrived at in the arbitration on the matter that a considerable diminution in the number of cases of plumbism had been brought

about owing to the improved working conditions imposed by the Home Office. It is satisfactory to report that the leadless glazed articles supplied to the public departments have proved to be substantially free from lead. With regard to samples referred to the Government laboratory by magistrates under the Sale of Food and Drugs Act, 119 have been examined, which means an increase of 41 samples over last year owing to the greater number of samples of butter and milk. The proportion of cases in which the Government results led to conclusions differing from those of the public analyst was 21 per cent., as against 20·8 per cent. for the previous year. The chief disagreements arose out of samples of milk and butter, while as regards four samples of soap liniment said to have been prepared with methylated spirit instead of rectified spirit, as required by the British Pharmacopœia, in only one of these cases could the certificate of the public analyst be upheld. While upon this subject we may note that according to a statement furnished to the Home Office by the Local Government Board, out of a total of 2673 fines imposed by magistrates under the Sale of Food and Drugs Act during one year 764 were of 10*s.* or less, 193 of less than 5*s.*, and 118 of 1*s.* or less. For years we have urged that the fines have been utterly inadequate and so absurdly small as practically to defeat the real object of the Act—viz., the protection of the people against fraudulent practices and against injurious additions in regard to food. It is time that this silly state of things should be remedied and by no uncertain method.

Annotations.

"Ne quid nimis."

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE Honorary Secretary of King Edward's Hospital Fund for London has forwarded to us the following statement with a request for its publication. His Royal Highness the President and the Executive Committee of King Edward's Hospital Fund for London have great pleasure in announcing that they have received from Lord Mount-Stephen and Lord Strathcona an endowment to King Edward's Hospital Fund for London, producing at present £6,000 per annum, and likely to increase in value. This most munificent gift will go far to complete the scheme inaugurated by His Majesty the King when Prince of Wales in 1897 to free the London hospitals from debt. It is earnestly hoped by all connected with the Fund that the sum still required to secure £100,000 per annum, the amount stated in the original appeal to be necessary to carry out the work of the Fund, may be obtained during this the first year of His Royal Highness's Presidency. The munificence of these two Canadian noblemen in this year of Empire is one more token that the London hospitals are in no sense local charities but Imperial houses of healing. Their patients are indeed drawn from an even wider sphere than that ruled over by His Majesty King Edward VII. That their income is in no way commensurate with the work which they have to do has been for many years only too evident, but the scheme set on foot by the King when Prince of Wales in 1897 bids fair to set these institutions on a sound financial footing. Not only have the inhabitants of these islands given of their wealth and of their poverty but the great Indian princes and now the Canadian merchant princes have stretched out a helping hand to the sick and needy. That the full sum to be made up will soon be obtained is the wish of all and we congratulate the authorities of the Fund upon being within measurable distance of this end.

IS THE PRACTICAL WORKING OF OUR RAILWAYS EFFICIENTLY SUPERVISED?

THAT small defects, by easily escaping ordinary observation, may lead to very grave issues has been very apparent recently in connexion with the working of our great railway systems. Apart from a flaw in the rolling stock itself the possibilities of a derangement in the rails are countless. Every linear foot along miles and miles of a railway may become a source of danger, perhaps by reason of subsidence, by a crack in the steel, or by the loosening of a chair or pin. Experience shows, at any rate, that the derailment of trains does not always find a clear explanation, yet it is, perhaps, in modern times the most fertile source of accident. In these circumstances the question naturally arises, Is the permanent way kept under constant and efficient supervision? Recent occurrences would tend strongly to show that it is not and a few instances may be cited supporting this conclusion. Not long ago the South-Eastern Railway quite suddenly announced the interruption of their main line traffic owing to a grave defect which had appeared in the Grove Park tunnel near Chislehurst. It was stated that a platelayer walking through this tunnel discovered very distinct evidences of the brickwork giving way. Is it a platelayer's duty to report upon the masonic condition of a tunnel? If so, is he to be regarded as a competent person for the purpose? According to reports it was by sheer accident that the platelayer remarked the defect. We now know that the defect was serious enough to lead the authorities at very great inconvenience to themselves suddenly to close the main line. It may be concluded, therefore, that the state of the tunnel was perilously close to the possibility of disaster. Was the condition of the tunnel known before the platelayer discovered it? If so, why was not the traffic diverted long before? if not, what system of supervision is adopted which failed to discover it? Again, a few weeks ago the Flushing boat express met with an extraordinary accident on the point of leaving London. The train suddenly "jumped" the rails and it could only have been by a miraculous series of events that an appalling disaster was averted. There were 200 people in the train who, needless to say, experienced considerable shock. Luckily, the express was travelling on rails in the centre of the track and for some most extraordinary reason several of the carriages took to the rails again by the intervention of diamond points. As it was the permanent way was ploughed up and great damage was done. Was this due to a defect in the rails? and if so why was it not made out? Yet again on the Great Eastern suburban line not long ago a very serious accident occurred to a very crowded train by which many persons were injured owing to the snapping of an axle. Is this cause of accident also to be passed over as unavoidable? Numerous instances of trains leaving the metals and hurtling over embankments could be quoted from records. That of a Hastings train on the Brighton line a few years ago was such a one. Where is the system of supervision in such examples? In our own personal experience we remember once travelling in a railway carriage the wheels of which were locked by the brake for quite 10 miles. It was anything but a pleasant experience crossing points at 30 or 40 miles an hour in a carriage with its wheels fixed. And yet if the station-master at the first stopping station had not been informed of the fact the train in all probability would have been allowed to proceed. On this information having been given, however, it was found

advisable to detach the carriage from the train. What system of supervision was in operation in this case? We have heard, too, of some alarming incidents in connexion with the "slipping" of carriages. After the carriage has been slipped, travelling, perhaps, at a considerable speed, the brake has suddenly acted, with an effect upon the passengers little short of that of a collision. In other cases the brake of the portion of the train running on may get beyond control and bring the train to an unexpected standstill, with the result that the slip carriages may dash into the main portion of the train. Railway officials have been known to express this fear. The slipping of carriages provided with automatic brakes is undoubtedly attended with risk and accidents have arisen on this account. Is the working of this system properly supervised? When traffic becomes disorganised or unusually congested many trains escape the tapping test which in the case of suburban trains is commonly applied to the wheels of the carriages at the terminus. Is the tapping test satisfactory? and if so would the omission to do it be like'y to be attended with risk? These questions demand an answer and should receive the immediate and serious attention of the Board of Trade, for the examp'es which we have quoted are not calculated to set the minds of the railway travelling public at rest as to whether the supervision of railway tracks and rolling stock is conducted with that precision and frequency which in the interest of their lives are imperative.

NEW CREMATORIUM AT LEICESTER.

BY a special Act of Parliament the Leicester corporation has been empowered to establish a municipal crematorium, and this has now been completed. It has been erected at the rear of one of the chapels at the new cemetery which was opened on August 25th. In this chapel a screen will be placed across the chancel which will shut off the crematorium in the case of ordinary burials. In the centre of the chancel stands the catafalque, or bier, upon which the coffin will rest during the service. Outwardly, the catafalque will consist of oak panelling and delicate tracery of the same character as the screen. When the funeral ceremony takes place before cremation at the conclusion of the service the coffin will be silently moved by invisible machinery and will pass out of sight through folding doors at the head of the catafalque which will close behind it. When these doors are closed an asbestos shield will be raised and the coffin will be moved by the same machinery into the incinerating chamber. The cremating apparatus is a furnace of the regenerative type designed by the late Mr. Henry Simon, president of the Manchester Cremation Society, and has been erected by Messrs. Henry Simon, Limited, of Manchester. It consists of three interior chambers, the two lower of which are surrounded by air passages. The lowest chamber contains a coke fire, and the upper or incinerating one is that in which cremation takes place. The fire is lighted some hours before the apparatus is to be used and is supplied with air in the usual way. By the time the apparatus is ready for use the walls of the air passages are thoroughly heated. Most of the direct air-supply is then cut off and the partially consumed carbonic oxide from the coke is allowed to mix in the second chamber with the air heated by passing through the side air passages, the result of which is that the incinerating chamber is thus filled with gas of an intensely oxidising character in a state of incandescence. The degree of heat can be regulated in the most exact manner. There is no smoke and little flame is visible before the body is introduced, and with a coffin made in accordance with the by-laws there is no smoke or noise during cremation. The process occupies from an hour to one and a half hours, at the end of which time there remains only the inorganic residue of the bones. The by-laws concerned with the crematorium are drawn up in a most careful manner. Two declarations must be filled in by separate medical men and both must be given on oath before a justice of the peace or notary public, while the corporation may, if it chooses, order that a necropsy shall be made at the cost of the party making the application for cremation. The coffin must be made of dry oak, poplar, or pine boards not more than three-quarters of an inch thick, wooden pegs only being used in its construction. No pitch must be used for coating the inside, but if the state of the body or the illness from which the deceased died make it desirable a thin zinc lining may be inserted. The charge for cremation if the deceased was resident within the borough will be £2 2*s.*, for any other person £5 5*s.*, but this charge may be partially or wholly remitted in cases of extreme poverty, at the discretion of the corporation.

THE SMOKE NUISANCE.

ONCE again has fiction proved the pioneer of fact. Mr. Gilbert's Lord Chancellor, it will be remembered, applied to himself for leave to marry his own ward and addressed himself in terms which rendered it impossible for him ever to apply to himself again. However, on being reminded that he was a just and kindly old gentleman he took heart and eventually obtained his own consent. The Battersea borough council is not a court, but on Sept. 3rd it summoned itself for committing a nuisance by emitting black smoke. The council's solicitor, Mr. P. Caudwell, appeared as a legal quick-change artist in the double capacity of prosecutor and defender. Before Mr. Rose, of the South-Western police-court, he charged himself with the offence and as the offender did not deny that he had committed it. He therefore, as it was a first offence, asked Mr. Rose to grant a prohibition order to prevent its repetition. This outcome is, we think, politic, for if Mr. Caudwell had not been able to satisfy himself that a simple prohibition order would suffice he would probably have been fined (we trust heavily); this fine, however, would have come out of the pockets of the ratepayers. Nevertheless, after such an example of municipal purity of conscience we live in hopes of seeing the London School Board "Cockertonising" its own accounts.

THREADWORMS AND APPENDICITIS.

IN the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of July 27th Professor Bégouin has published an important paper on Threadworms and Appendicitis which is of special interest in connexion with the correspondence which has recently taken place in our columns.[1] He relates the following case. A woman, aged 24 years, was admitted to hospital with the diagnosis of recurrent appendicitis. For four or five years she had been subject to attacks of pain in the right iliac fossa which lasted for three or four days and disappeared for weeks or months. Once or twice there was a little swelling in the iliac fossa. Menstruation was normal and the general condition was good. Examination showed a slight tender tumefaction of the size of an almond below McBurney's point. The diagnosis lay between relapsing appendicitis and sclero-cystic ovaritis. On operation the latter condition was found and the ovary was removed. The vermiform appendix was free from adhesions, but as it was a little more turgid than normally it also was removed. It contained 15 threadworms, fragments of bread, and grains of starch. Some of the threadworms were united in a bundle and formed a sort of plug. There were four small superficial ulcers

[1] THE LANCET, July 5th (p. 58) and 12th (p. 125), 1902.

(*exulcérations*) of the mucous membrane in the position of follicles which were turgid; and one of these follicles was surrounded by an infiltration of leucocytes. Metchnikoff called attention to the relation between intestinal worms and appendicitis in the *Bulletin de l'Académie de Médecine* of March 12th, 1901 (p. 301). He thinks that worms are often the cause of appendicitis and that the administration of vermifuges will prevent and cure appendicitis. More recently (July 2nd) Kirmisson and Lannelongue have discussed the subject in the same publication. But in all these papers the question has been the rôle of the ascaris lumbricalis and of the trichocephalus dispar; the threadworm was never found in the diseased appendix. Professor Bégouin can find only a single reference to the existence of threadworms in an excised appendix—a case recorded by Routier which is cited by Guinard in his article on appendicitis in the "Traité de Chirurgie" of Ledentu and Delbet (tome vii., p. 476). Metchnikoff, like most authorities, admits that worms may cause ulceration of the mucous membrane, which may be the starting-point of an infection penetrating the whole intestinal wall, and also that worms may mechanically obliterate the lumen of the appendix and favour exaltation of virulence of the microbes. The latter condition evidently existed in Professor Bégouin's case.

THE RELATION OF EPILEPSY TO CRIME.

AT the recent annual meeting of the American Neurological Association (June, 1902) Dr. W. P. Spratling, medical superintendent of the Craig Colony for Epileptics, New York State, in an interesting contribution on the Relation of Epilepsy to Crime, pointed out that the epileptic "fit" in its classical form only constituted one-half the picture of the disease, for the mental states consequent upon the fit were of the most varied and abnormal forms and constituted another aspect of the disease which possessed both clinical and medico-legal importance. Such manifestations varied from a condition of stupor or stupidity to one in which extraordinary crimes have been committed. The insane epileptic of asylums had little facility for crime, partly because he was vigilantly supervised and partly because he was less potent for evil owing to his being more or less demented. There were many epileptics who were not, or did not become, insane, and although the exact proportion was not easy to determine it could not be less than 15 or 20 per cent. of the total. An epileptic who is sane at other times may, while in the peculiar mental condition following upon a fit, commit the most open and extraordinary crimes. In this state, argues Dr. Spratling, he stands forth as a curious anomaly under the law of responsibility, for with consciousness subverted or destroyed the brain may give expression and effect to impulses of a dangerous or abnormal nature without possibility of self-control. In many cases the danger of epilepsy does not cease with the passing-off of the convulsions and post-convulsive stupor, for there frequently follows a sub-conscious state, lasting from a few minutes to several days, during which the condition of the patient is best described as one of mental automatism with loss of the sense of personal identity. He then acts like a mere machine, being able to go about as usual and able to take his meals and to perform sundry other commonplace actions as was his habit before the attack. And yet he is all the while absolutely ignorant of what he is about—his mind is a blank. In such a state he may do a criminal deed without premeditation or criminal intent, "as a railway engine may kill a person while running away without its driver." The same curious and interesting phenomenon of mental automatism may appear in cases of so-called psychical epilepsy, in which motor convulsions do not take place, but a state of acute frenzy and "blind" excitement occurs, lasting for a few hours or days. This form of psycho-epileptic frenzy is, says Dr. Spratling, never momentary, as a study of over 1300 cases has convinced him that it lasts some time. The most difficult medico-legal problem connected with epilepsy is encountered in the purely psychical forms of epilepsy—those uncomplicated with convulsions or crude motor manifestations. Here the patient may commit the most strange acts, such as wandering about without any consciousness of locality or sense of personal identity until he finds himself stranded away from home and friends, when normal consciousness eventually returns, a condition to which reference has already been made in these columns.[1] It is not safe to oppose an epileptic while he is in such a state, as he is apt to become combative and dangerous. Thus a case is cited by Dr. Spratling of a man who had a seizure of *petit mal* while in an elevated railway in New York. By the time the guard reached him he was all right, but when the time came for him to leave the car some minutes later he made no move to go. The guard took him by the arm to move him when the patient struck at him violently and a fight ensued which led to his being arrested and locked up. When he came to his senses he was greatly mortified at being in jail, and on showing his card of epileptic seizures was permitted to go. He was, says Dr. Spratling, unconscious when he struck the guard and had no intent whatever of doing wrong. Dr. Spratling concludes by citing other cases where dangerous and even murderous attacks on persons have been committed by epileptics during the stage of mental automatism which may follow a fit and he points out the close analogy of this state to insanity.

SERUM TREATMENT OF TYPHOID FEVER.

IN the August number of the *Maryland Medical Journal* Dr. William Royal Stokes and Dr. John S. Fulton of Baltimore publish a series of experiments which they have made in order to test the effect of a serum of high immunising power on cases of typhoid fever. For the purpose of obtaining such a serum they injected hogs with pure virulent cultures of the typhoid bacillus, for these animals will stand the injection of the cultures without any discomfort, whereas in horses sloughs may form. Bouillon cultures 48 hours old were injected into the tissues of the abdomen in increasing doses at intervals of about 10 days for a period of about five months—namely, from July 24th to Dec. 31st, 1900. The amount of the first injection was 10 cubic centimetres and that of the last was 1130 cubic centimetres. For the large injections the glass vessel intended for injecting salt solution was used, a foot-bellows being attached to it for the purpose of forcing the fluid into the tissues. The animal was bled three times—namely, on Feb. 27th, March 21st, and April 5th, 1901; one litre of blood yielding about 200 cubic centimetres of serum was drawn each time. The results of 90 experiments with this serum on guinea-pigs might be summarised by stating that the subcutaneous injection of the serum in doses of from $\frac{1}{2}\frac{1}{0}$th to $\frac{1}{5}\frac{1}{0}$th of the body weight will protect guinea-pigs against four times the minimum fatal dose of intraperitoneal injection with the typhoid bacillus. The injection of $\frac{1}{2}\frac{1}{0}\frac{1}{0}$th to $\frac{1}{1}\frac{1}{0}\frac{1}{0}$th of the serum by weight into the abdominal cavity will protect against five times the minimum fatal dose, and a dose of $\frac{1}{2}\frac{1}{0}$th to $\frac{1}{3}\frac{1}{0}$th of the body weight will protect against seven times the minimum fatal dose of the typhoid bacillus. This serum has been used in the treatment of five patients suffering from typhoid fever, in two of whom no appreciable effect was produced upon the temperature, pulse, or other

[1] A Case of Pure Psychical Epilepsy, THE LANCET, July 29th, 1899, p. 290.

symptoms, but three of them seemed to show some improvement under the serum treatment. The total amount of serum injected in each case was respectively 65, 120, 200, 64, and 60 cubic centimetres. The amount of the individual injections varied from 10 to 40 cubic centimetres.

MORTALITY IN ITALY IN THE PROFESSIONS AND TRADES AND AMONG CHILDREN.

FROM the official statistics, dealing with the last statistical years 1898, 1899, and 1900, we gather that out of 100 males of every profession whatever, dead from 20 years of age and upwards, only 40 have lived longer than 70 years. Taking the *media complessiva* (the average collectively) the priests and monks reach the highest figure, 57 per cent. having exceeded the "term of the Psalmist," while the next in order are the capitalists and landed proprietors with 53 per cent.; the mariners, bargees, and fisher-folk, with 46 per cent.; the medical practitioners and veterinary surgeons with 43 per cent.; and the agricultural population with 43 per cent. Death is more premature among printers and lithographers, of whom only 19 have attained 70 years. "Guards," which in Italy means the police service, become septuagenarians only in the proportion of 19 per cent.; miners and quarrymen in that of 21 per cent.; commission agents and domestic servants, 23 per cent.; waiters in hotels and restaurants, 25 per cent.; porters, 27 per cent.: barbers, 28 per cent.; coachmen and carters, 28 per cent.: grooms, tavern-keepers, and restaurateurs, 29 per cent.: teachers and "professors," 29 per cent.: butchers, drysalters, and sausage-sellers, 30 per cent.: and smiths, farriers, and mechanics, 30 per cent. Infantile mortality is in marked diminution, thanks to the improved condition of the country, sanitary and hygienic. In fact, in 1900 (a year of exceptional mortality among children on account of the influenza), out of 1000 infants under one year of age 172 died, compared with 206 in 1897. The same proportion of deaths per 1000 is maintained in the case of children up to five years of age.

THE CAUSES AND TREATMENT OF VERTIGO: A SYMPOSIUM.

AT a recent meeting of the New York Academy of Medicine, a report of which has appeared in the New York *Medical News* of August 16th last, an important discussion was opened on the Causes and Treatment of Vertigo by Dr. Charles S. Fisher of New York. After referring to the description of "gastric vertigo" as given by Trousseau, Dr. Fisher said that the term should be limited to cases marked by sudden onset, intense dizziness, and a sense of fear or disaster, but not accompanied by loss of consciousness. These cardinal symptoms were nearly always associated with pain or oppression felt in the epigastrium and the attack was usually followed by a feeling of nausea. Actual gastro-intestinal disorder in the form of dyspepsia, gastric catarrh, or constipation was generally, but not always, present. It seemed, however, in the light of our present knowledge of gastric disorders that it was only when secretory gastric troubles, with excess or deficiency of hydrochloric acid, were present that vertigo became a prominent morbid feature. Ocular or aural troubles were sometimes found to exist in such patients if looked for with care. The subjective disturbances causing vertigo were probably aroused by nervous excitations carried from the stomach to the bulbo-spinal centres by the vagus nerve. Many observers had noticed that vertigo followed the introduction of a stomach-tube. The term "secretory gastric disturbance," as above used, said Dr. Fisher, should include those local disorders which permit of the formation and absorption of toxins in the alimentary tract, since the resulting toxæmia was often a determining factor in vertigo. In some of Trousseau's cases attacks of vertigo were precipitated when the patients looked at a revolving object, so that auto-suggestion would seem to play a rôle. Vertigo might be associated, said Dr. Fisher, with other forms of nervous disturbance in the same patient, such as agoraphobia, or fear of open spaces. Here, however, the cause of the vertigo was psychical, while the agoraphobia was itself of psychical origin and not associated with the stomach. In the discussion which followed the above communication Dr. Brandegee pointed out that congestive and inflammatory conditions of the Eustachian tube and tympanum were productive of vertigo, the immediate cause being an increase of pressure within the labyrinth of the ear. Dr. Pearce Bailey said that tea, coffee, and tobacco taken in excess produced vertigo, and that in some patients, both syphilitic and non-syphilitic, the administration of large doses of iodide of potassium was followed by pronounced vertigo and a staggering gait. Vertigo was also an early symptom in general paralysis and coincided with commencing loss of memory. It occurred also in other forms of cerebral syphilis and was often a warning signal of threatened apoplexy. Professor Max Einhorn said that the gastric conditions present in cases of gastric vertigo were catarrh and secretory disturbances. The hyperacidity of nervous indigestion was curable by Vichy water or other alkaline remedy, and when it disappeared the associated vertigo was also abolished. He cited cases where there was a deficiency of the stomach secretion with the result that rough particles of food coming in contact with the mucous membrane of the stomach caused a reflex vertigo. If sufficient liquid was taken with the meals this trouble disappeared. Dr. Dench pointed out that syphilis produced labyrinthine vertigo, which, however, responded well to dosage with mercury and pilocarpine—a fact which others who took part in the discussion were able to confirm. Most of the speakers also agreed that the local correction of aural and ocular troubles mitigated the attacks of vertigo.

THE LOCAL GOVERNMENT BOARD AND MEDICAL WOMEN.

THE Burnley board of guardians is in a state of rebellion against the Local Government Board in respect of the recent appointment of a lady as a resident medical officer at the workhouse. At the meeting of the guardians on August 21st a letter was read from the Board in which it is said "that they consider that the appointment of a lady as assistant medical officer when a medical staff consists of two officers only is open to objection, having regard to the fact that it is to be her duty to act as medical officer-in-chief during the absence of that officer. The Board therefore requests that the matter will receive further consideration." The guardians, however, were not to be turned from their purpose and one of them moved that the "further consideration" consist in the re-affirmation of the appointment. "It was time they, at any rate, showed," he said, "that they were above the ordinary prejudices which seemed to act against the appointment of women who were, as in this case, thoroughly well qualified, not only by examination, but by practice." This was seconded and the motion was carried unanimously. The question of the appointment of a young unmarried woman as junior medical officer to a workhouse where the senior is also young and unmarried is a difficult one when looked at from either the social or professional standpoint. There can be no difficulty in indicating one of the principal objections to such an appointment. In the absence of the male assistant medical officer his female colleague would be responsible for the medical work of the establishment, and although she might be quite proficient in the use of the catheter and in the arresting of hæmorrhage, most members

of her sex would feel themselves placed in an embarrassing position by the admission of a man suffering from an extreme degree of retention of urine or bleeding profusely from a recent laceration of the external genitals. It is neither necessary nor desirable to elaborate this argument, but it is manifest that if the lady does not deal with such cases as part of her ordinary work it is hardly in the interest of a patient suffering in the way we have suggested that she should have to treat him in an emergency.

SURRA IN THE PHILIPPINE ISLANDS.

THE existence of surra in the Philippine Islands is definitely announced and is causing considerable mortality among the transport animals and cavalry horses of the United States army of occupation, some 2000 animals having died from it during the last six months of 1901. The disease has proved almost invariably fatal and has caused some alarm owing to the possibility of its introduction into the United States. Captain Curry, M.D., reports that the carrier of surra in the Philippines is a biting fly, the *Stomoxys calcitrans*.[1] He has examined a large number of flies and mosquitoes but has found the trypanosome only in this species, in which it may remain alive for 24 hours after biting an infected animal. This fly is very abundant in and about Manila, especially in the stables and corrals, and it lays its eggs in the dung, in which the larvæ and pupæ thrive. As a prophylactic measure, all remedial agents having failed, the destruction or disinfection by lime or petroleum of animal excrement in all stables and corrals is recommended.

DURHAM COUNTY CONSUMPTION SANATORIUM.

WE have received a copy of the third annual report of the Society for the Prevention and Cure of Consumption in the county of Durham. We cordially agree with the general tone of the report. We have frequently urged that it is the duty of medical men to educate their patients as to the danger of infection which may arise from the improper disposal of tuberculous sputum. The committee of the Durham Society has been adopting this principle. Addresses have been given to meetings of workmen, members of the Sunderland board of guardians, and the Coöperative Society, and letters have been sent to the various local authorities asking them to adopt preventive measures. Several authorities now offer the free disinfection of rooms vacated by consumptives and distribute leaflets showing the great danger of indiscriminate spitting, of breathing close and vitiated air, and the need for the better ventilation and lighting of cow-byres, as well as the more stringent supervision of the milk-supply. It is interesting to note that voluntary notification of cases of consumption has been in force in Sunderland for a year and the medical officer of health states that 96 cases have been reported. Sunderland has a population of over 146,000, so that the number notified cannot be stated to be large. Further, the borough of Gateshead has also adopted voluntary notification, so that this measure is now in force amongst over a quarter of a million of the population in the county. We shall await with interest further intelligence of the result of this experiment. The report of the medical officer (Dr. J. Gray) as to the results of the sanatorium treatment is certainly satisfactory and we trust that the necessary funds will be forthcoming to provide more beds. Attached to the report is an article on "Consumption: Its Prevention and Cure." It is intended "for the use of sanitary authorities, boards of guardians, consumptives, and the general public." Information is given in a popular manner of the methods by which tuberculosis is spread and the means which may be adopted to diminish its dissemination.

[1] American Medicine July 19th, 1902, p. 95.

ON THE "INTENSIVE" MERCURIAL TREATMENT OF GENERAL PARALYSIS AND TABES DORSALIS.

PROFESSOR LEMOINE of Lille has contributed to the *Revue Neurologique* of July 30th last an important practical paper on the treatment of general paralysis and tabes dorsalis by the hypodermic injection of an organic salt of mercury in large doses and for prolonged periods. He refers to the view generally entertained by many physicians that general paralysis and tabes dorsalis are but little capable of improvement under the so-called "intensive" form of mercurial treatment, and publishes a number of cases where the results of treatment, especially as regards general paralysis, are so strikingly beneficial as to suggest that the question requires reconsideration. 12 cases are recorded by him at some length, six being cases of general paralysis and six of tabes dorsalis submitted to treatment. Two out of the six cases of general paralysis are recorded below as typical and illustrative. Case 1. The patient was a man, aged 29 years, with a history of syphilitic infection. He had been well treated with mercury after he had contracted the disease and had married subsequently and begotten two apparently healthy children. He developed general paralysis later. On then coming under observation he was submitted to the form of mercurial treatment alluded to at the heading of this annotation. He was given daily hypodermic injections of benzoate of mercury to the extent of two centigrammes (three-tenths of a grain) per dose, from Oct. 10th to Dec. 25th, 1897. The treatment was carried out uninterruptedly with the following results. Speech and memory, which had hitherto been impaired and defective, were much improved but the general mental weakness remained the same. From time to time since then, up to February, 1902, treatment was continued. The mental and physical conditions improved further and only a slight pupillary inequality remained. He had since 1897 begotten four children, all of whom appeared to be healthy. Case 2. The patient was a man, aged 27 years, of alcoholic habits, neuropathic predisposition, and impulsive temper. He had had syphilis when a youth, and some years afterwards he developed symptoms of general paralysis with grandiose delusions and megalomania. He was then admitted into an asylum and treated with daily injections of benzoate of mercury to the extent of two centigrammes (three-tenths of a grain) per dose, as in Case 1. The injections were given for 15 days continuously and then discontinued for a similar period. The dose was then raised to three centigrammes (about half a grain), the intervals of treatment and discontinuance being as before, the whole period of treatment extending from May to the end of September. During October considerable amelioration was seen both mentally and physically. The treatment was now reduced to two centigrammes (three-tenths of a grain) per dose, and this was continued for seven months. A slight apoplectiform seizure occurred once during this period. At the end of the time it was noticed that the disease (dementia) was arrested, though the patient's original character and disposition—viz., those of a neuropath—were clinically unmistakeable. Professor Lemoine gives detailed accounts of four other cases of general paralysis treated as mentioned. In all the six cases he observed marked improvement of symptoms both mental and physical, but, as he points out, longer periods of observation are necessary before it can be conclusively established that the disease has been definitely arrested in such cases. The excellent results obtained, however, in these cases of general paralysis he regards as justifying publication. Of

six cases of tabes dorsalis submitted to the same form of mercurial treatment five improved moderately and one very markedly as regards the ataxia of gait, but lightning pains still occurred at times in all and the knee-jerks were absent. Professor Lemoine uses the benzoate of mercury because it can be injected locally without harm to the patient. He advises deep injection into the subcutaneous tissue and muscular fasciæ, and says that the pain produced is slight. Summarising his results generally he thinks that the improvement attained in cases of general paralysis is greater and more striking than in cases of tabes dorsalis.

THE FIRST VACATION SCHOOL IN ENGLAND.

ALL ratepayers know that the children of board schools have the month of August in every year as holidays. A few of the more fortunate ones get away into the country, which is obviously the most ideal way of spending the summer vacation. But by far the greater number of the London children have no country air to look forward to and spend August indoors, where they are perpetually in their mothers' way, or outdoors on the pavements getting into all kinds of mischief, quarrelling, and fighting. Mrs. Humphry Ward has this year tried an experiment at the Passmore Edwards Settlement in Tavistock-place, of opening a voluntary school during August for the children of the neighbourhood who habitually attend some 10 board schools and three voluntary schools. Children able to pay a country visit or those wanted by their mothers for household work were excluded, but more than 600 others volunteered with acclamation to attend, and spent happy hours, tinged only with the one disappointment that they could not stay longer for more classes. No punishments were necessary, excellent discipline was maintained, and the threat of being sent to the head-master, who had power to dismiss from the school, was always found sufficient by the teachers. The children were divided into two classes which alternately worked for two and a half hours in the morning or the afternoon for five days in the week only. In the Duke of Bedford's large garden adjoining the settlement we found on the day of our visit five classes happily grouped under trees clay-modelling, listening to stories, engaged in kindergarten games, needlework for the girls, and nature study which was taking the form of a demonstration on tadpoles. In another corner a joyous, shouting class was building a range of mountains in the sand-heap, the children working with feverish activity in the short half hour at their disposal. In the house we saw many interesting lessons going on, such as housewifery (which includes the washing and dressing of a baby), drawing from memory from previous lessons and copying flowers, singing to the piano, gymnastics in a fine gymnasium, drilling, dancing, and carpentering. Among the favourite classes for both boys and girls was cooking in the kitchen, where the boys proudly showed us the baked savoury mince and the plum-pudding which they had just learned to make. A dramatic class was rehearsing a scene from the *Midsummer Night's Dream*, which was eventually acted for the benefit of the parents, and another favourite half hour was that spent in the library, well stocked with story-books. The various so-called lessons were all carefully chosen to employ the children's muscles rather than their brains and all lesson books were rigidly eschewed. The children varied in age from six to 13 years, infants not having been accepted. A trained nurse was on duty all through the day, ready for the reception of any sick children; she was also responsible for the cleanliness of the lavatories and general hygiene. Parents of the children stated that they had never had such a peaceful August before, and the general success of the experiment seemed to be greatly due to the perfect organisatio shown by Mr. Holland, the head-master. He was ably aided by 12 teachers and four assistants, who were paid out of a small fund raised by Mrs. Ward and her personal friends. The cost amounts to about £60 a week, which is much the same as the expenditure in the New York and Chicago vacation schools which have been for some years in progress. We cordially sympathise with this experiment, because it seems to us that it helps in a small way to militate against embryo hooliganism. The children and their parents are ready for an extension of the scheme next year. The school buildings already exist, the necessary funds for teachers and materials can surely be furnished by the London School Board provided that it is clearly laid down that the children's brains are not to be worked during their one month's holiday, but there is one great difficulty which we cannot help foreseeing, and that is the supply of teachers, if the movement is to become general. It is obvious that board school teachers should not be encouraged to give up their necessary holiday, but it may be quite justifiable to employ, as in the late experiment, teachers engaged in secondary or middle-class education, aided by students from training colleges, who usually get at least two months' holidays in the summer. Are there enough of these to make general vacation schools practicable in London and other large cities?

SMOKE PREVENTION AND PETROLEUM LAMP ACCIDENTS.

NOT the least interesting sections of the annual report of the chief officer of the Public Control Department of the London County Council are those relating to the steps taken to prevent smoke nuisance and to the returns showing the number of petroleum lamp accidents investigated by the Council's inspectors. It is satisfactory to note that the action taken under the Public Health Act by the Council and by the borough councils during the year ended March 31st, 1902, has resulted in 819 cases of nuisances being reported, of which 541 were regarded as serious. Legal proceedings, however, were taken by the borough councils in only 119 cases and convictions were obtained in 106 of these, the total amount of penalties imposed being nearly £551. We rejoice to find that the Public Health Committee are considering how they can increase their powers in this matter and it is suggested that the special section of the Act should be so worded as to cover any serious emission of smoke from a chimney. Further, it is proposed to impose a direct penalty of not exceeding £10 for the first offence, to be increased for subsequent offences, instead of applying to smoke nuisance, as at present, the complicated procedure that may be properly applicable to a sanitary nuisance. We certainly agree that if the law could be so amended its active administration would at once lead to a considerable diminution of the smoke nuisance which still afflicts London. With winter approaching we trust that a strong endeavour will be made to bring such excellent proposals into effect. Under the same Act proceedings were taken in regard to 74 cases of smoke nuisance arising from railway locomotives. The worst offenders in this respect were the South-Eastern and Chatham Company who contributed just one-half of the cases and paid accordingly one-half of the total amount of penalties (£230) imposed. The Brighton line comes next, then the Great Eastern, then the Southend line (four cases), and the London and North-Western (three cases). The Midland, Great Northern, Great Western, Great Central, and London and South-Western railway companies do not appear in the category. The number of lamp accidents investigated by the Council's inspectors during the past year was the same as in the previous year—namely, 204—whilst the number of fatal cases diminished to 18, in which 21 lives were lost. In

most cases the accidents were due to cheap lamps, to the penny glass lamp or white china table lamp, or to lamps with thin glass reservoirs. The return of lamp accidents does not altogether justify the chief inspector's statement that a remedy for the great majority of petroleum lamp accidents would be found in raising the flash-point and that to deal with the evil solely by means of improvements in lamps will not be effectual. In not a single instance in the lamp accidents is he able to state that the lamp was well made. In one case in which two women lost their lives the flash-point of the oil proved to be 103° F.—that is to say, 3° above the temperature to which it is proposed to raise the flash-point. In the face of this example, in which the broken lamp had a thin glass reservoir, he states that it is the experience of the department that it is quite exceptional for a lamp in ordinary use to develop such a heat on burning as to raise the temperature of the oil to a point above 100° F. In this accident the flash-point of the oil was 103° F., while in the two other accidents it was 94° F. and 95° F. respectively. We quite realise that it would be a simpler matter from an administrative point of view to enforce the use of high flash-point oil rather than to insist upon the use of properly constructed lamps, but we still believe that there would be greater security in the use of a properly constructed lamp than in the use of oil of 100° F. flash-point. Surely it cannot be maintained that the penny glass lamp is safe in any circumstances.

TREATMENT OF GONORRHŒA IN THE FEMALE.

IN a long article published in the July number of the *University of Pennsylvania Medical Bulletin* Dr. W. B. Small considers the subject of gonorrhœa in the female under the headings of urethritis, cervical gonorrhœa, specific vaginitis, gonorrhœal vulvitis, gonorrhœa of the rectum, and gonorrhœal bubo. In the acute stage of specific urethritis the symptoms complained of are frequent and painful urination. Local treatment is contra-indicated but a powder consisting of bicarbonate of potassium, bromide of potassium, and salol, five grains of each, may be given every four hours until the dysuria is somewhat relieved. The discharge will then be purulent and the urethra may be irrigated with protargol solution, 1 part in 100 or 200, by means of Skene's reflux catheter or a soft rubber catheter. Capsules of copaiba and sandal-wood oil should also be administered internally. After a time injections of sulphate or acetate of zinc, alum, and tannic acid may be employed and continued for two or three weeks. If urethro-cystitis occurs a solution of protargol of 1 per cent. strength may be applied directly to the bladder wall. Cervical gonorrhœa can only be diagnosed by the help of the microscope. No symptoms usually manifest themselves at the beginning. Dr. Small recommends that a solution of protargol of 1 or 2 per cent. strength should be injected with a syringe into the cervical canal, injecting very slowly and only while the syringe is being withdrawn, but he admits that this practice is disapproved of by many gynæcologists on the ground of the danger of fluid being forced into the Fallopian tubes. If applications of protargol, nitrate of silver, and ichthargan fail, then pure carbolic acid and curetting must be resorted to. Specific vaginitis is a disease the existence of which is doubted by some observers, because infection seldom occurs when Neisser's diplococcus is introduced into the perfectly healthy vagina of an adult. Vaginitis, however, assumes a virulent form in infants infected by dirty towels or in consequence of criminal assaults. Vaginitis in the infant is difficult to treat, particularly when the vaginal opening is very minute. Weak solutions of boric acid, protargol, and nitrate of silver may be used, together with small suppositories of ichthyol. Gonorrhœa of the vagina in older persons will permit of frequent douching with potassium permanganate, 1 in 2000, followed by protargol, 1 in 100, until the acute stage has somewhat subsided. The careful exposure of the vagina, in the knee-chest posture, with a specially constructed wire speculum, followed by swabbing the entire surface with protargol, 1 in 20, and placing a tampon containing a weak ichthyol ointment so that the vaginal walls will be separated, is essential. This should not be retained longer than 12 hours and be followed by a cleansing douche of at least three gallons of hot water, then of another quart of mildly astringent douche. Gonorrhœal vulvitis, like gonorrhœal vaginitis, reaches its most pronounced type in the young. In the infant a mixture of equal parts of boric acid solution and diluted liquor plumbi subacetatis should be frequently used to cleanse the parts and a few layers of gauze saturated with the same solution should be kept between the labia. In older patients gauze saturated with protargol solution, 1 in 50, should be placed between the labia. In both infants and older patients, after the acute symptoms have somewhat subsided, the parts should be painted with nitrate of silver solution, 1 in 50, followed by a dusting powder composed of equal parts of boric acid and acetanilide. Rectal gonorrhœa, which is more frequently caused by the backward flow of the infectious vaginal discharge than through unnatural practices, manifests itself usually by pain and tenesmus. In the early stages a solution of protargol of 1 per cent. strength combined with tincture of opium can be used to advantage, followed after the acute stage has subsided by an astringent injection of alum and sulphate of zinc. Gonorrhœal bubo in the female does not seem to be as frequent as in the male. At the first sign of swelling of a gland complete rest is necessary and an ointment should be applied consisting of equal parts of ointment of mercury, ointment of belladonna, pure ichthyol, and lanolin, spread on lint at least half an inch in thickness, covered with waxed paper, and over this a well-fitting pad of cotton-wool, the whole being very firmly bandaged with three successive bandages, each three inches in width and eight yards in length. If this treatment is followed for a week without any distinct improvement in the condition the possibility of stopping suppuration is slight.

CHOLERA IN EGYPT.

DURING the week ending August 18th the figures for cholera throughout all Egypt were as follows: total number of cases, 1127; deaths, 791; and recoveries, 43. The Director-General of the Sanitary Department of Egypt writing on August 19th says: "In Cairo 150 cases have been announced, against 97 during the week ending August 11th. Many of these cases have been found in the villages around Shubra and Abbassieh, and though they figure in the bulletin as coming from Cairo they have not occurred in the city itself; again, others have come into Cairo from infected villages in the Guizeh Moudiria and have died there. There has been a marked increase in the number of towns and villages infected during the past week and in those places which depend entirely for their water-supply on surface wells the number of persons attacked has been considerable. During the last week 72 new localities have become infected. Hospitals with accommodation for 840 persons have been distributed throughout the country up to the present."

POTATO POISON.

A POISONOUS principle called solanine has long been known to exist in the berries of the common potato plant. Indeed, for the purpose of preparing the alkaloid in the pure state the berries are conveniently employed. It may also be obtained from the nightshade and the bittersweet, the

alkaloid being found in all parts of these common English plants belonging to the solanum or nightshade order. Cases of poisoning from potatoes are, however, extremely rare, although those recorded are well defined. It is undoubtedly the case that there is a time when the potato may contain an important quantity of poison, and this appears to be when the tuber has begun to germinate and to shrivel. In that case the solanine has been found chiefly in the peel and at the root of the eyes or shoots. This fact would seem to account for the death of a child recently at Bristol. Amongst other things which she had eaten were some potato peelings, and the medical evidence showed that the child died with symptoms consistent with solanine poisoning which are similar to those of strychnine poisoning but less acute. An interesting account of the symptoms produced by eating diseased potatoes appeared in THE LANCET as far back as 1846 (Feb. 14th, p. 190). A peculiar affection was invariably traced to the use of diseased potatoes, being ushered in by rigors, hot skin, quick pulse, and abdominal pain. In the next stage rose-coloured patches appeared and as suddenly vanished, and in the majority of cases diarrhœa supervened; in the third stage there was a swollen state of the muscles of the neck, shoulders, and arms, with pain so acute that the patient winced on the slightest pressure. Inability to raise the arms, pains in all the bones, a red erysipelatous state of the face and skin, with œdematous swelling of the eyelids so as nearly to close them, were also observed. 10 cases of this affection had occurred in three or four days in the same locality (in Ireland) and all were similarly affected. The case recorded recently need give no grounds for alarm, for an actively poisonous potato is quite a rare specimen. The poison, however, probably occurs normally in the tuber in very small quantity, but this quantity may increase to a poisonous amount in the sprouting, shrivelled, or diseased potato and then most of it is found in the skin and eyes. In any case, diseased potatoes would be naturally avoided and they are generally discoloured. The risk, of course, would be greater when such a potato is eaten with, as it is often cooked in, its jacket.

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE following companies have notified their intention of offering reductions in railway and other tickets to members who propose to attend the forthcoming International Congress of Medicine. The Northern Railway of Spain and the railway from Madrid to Zaragoza and Alicante offer 50 per cent. reduction. The Transatlantic Company of Spain offers 33 per cent. reduction, and the following French railway companies—the East, the South, the North, the West, the Paris-Lyon-Mediterranée, and the State and Orléans—offer a reduction of 50 per cent. The General Italian Navigation Company as well as the Puglia, the Napolitana, and the Siciliana Steamship Companies also offer 50 per cent. reduction. All information about tickets and similar matters may be obtained from the "Voyages Pratiques," No. 9, rue de Rome, Paris. Preliminary programmes of the Congress may be obtained from the National Committees in the various countries or by writing to the general secretary at Madrid All notices of papers to be read must be sent to the general secretary before Jan. 1st, 1903. The subscriptions—viz., 30 pesetas—that is to say, from 23 to 25 francs, according to the rate of exchange—may be sent in to the various national committees or to the general secretary at Madrid.

THE DISTRIBUTION OF PLAGUE.

THE return of Dr. B. Burnett Ham, Commissioner of Public Health to the State of Queensland, shows that up to midnight of July 7th the total number of cases of bubonic plague reported was 81. The total number of deaths was 25 and the total number discharged as recovered was 56. 3800 premises have been cleansed and 2150 loads of filth removed in addition to the ordinary removals of trade and house refuse from within the infected area of the municipality of Brisbane since the end of April. Since January 19,000 rats have been destroyed. 1350 rats have been examined bacteriologically and of these 98 have been found to be infected with plague. As regards Egypt, the returns for the week ending August 17th have been as follows: number of new cases, 3—all Europeans; number of deaths, 1; number of recoveries, 5; and total cases under treatment, 10. With regard to sanitary measures, 13,266 rooms were disinfected and 75 were lime-washed. 115 sacks of effects were disinfected and 7782 sacks of rubbish were burnt. The number of rats killed and burnt was 942. As regards Hong-Kong a telegram from the officer administering the Government, received at the Colonial Office on Sept. 2nd, states that for the week ending August 30th there were 8 cases of plague with 8 deaths.

LEONARDO DA VINCI AS AN ANATOMIST.

Messrs. Roux and Vlarengo of Turin have recently published an edition of Leonardo da Vinci's "Dell' Anatomia." Like Goethe, the consummate painter was profoundly interested in the structure of the human subject, as well as in its relations to lower organisms, and the volume before us (of which but 400 copies have been issued) contains matter enough to leave it doubtful whether the artist of the "Cenacolo" might not equally have distinguished himself in the field so fruitfully cultivated by a Cuvier or a Darwin. The "Dell' Anatomia" is the reproduction, with 79 tables in heliotype, of Leonardo's original "quaderni" (sheets) preserved in the Royal Library at Windsor, 193 drawings by the master being also reproduced in facsimile. These, as he tells us in so many words, form part of his studies in the bones, the muscles, the nerves, the veins, the arteries, and the viscera of the *corpus humanum*. His peculiarly difficult manuscript has been skilfully deciphered, the text transcribed, and the reading of it made easy, by Professor G. Piumati, who has also annotated it in the most helpful manner with the coöperation of M. Th. Sabachnikoff. The "all-accomplished artist of the Renaissance" appears to exceptional advantage in the "Dell' Anatomia," showing himself as a precursor in the path in which modern science has won so many trophies. In lofty disdain of theologian and schoolman alike he brushes prevailing superstition aside, proclaims in language worthy of Darwin the "unity in variety" of living species, and sets forth a "description of man, while describing concurrently those animals which are almost a similar species *(che son quasi simile specie)*, like the baboon, the ape, and their many congeners." To confirm his induction he draws the arm of an ape and that of a man, placed one over the other, demonstrating the greater strength of the former. He gives us an admirable description of the tongue as the organ of speech, arguing how its modifications coincide with the varieties of idiom, or rather dialect, between one people and another; how the intermingling of men due to invasions and wars of conquest leads to linguistic developments; and how languages decay like the mortals who speak them. In the words of Horace—

> "mortalia facta peribunt,
> Nedum sermonum stet honos et gratia vivax."

Touching in its simplicity is his account of his modes of research, clinical and other. He would go to the bedside of the dying to ascertain how the "vital spark" was extinguished and tells how he sat beside the pillow of an old patriarch in the Hospital of the Santa Maria Nuova in Florence and gently interrogated him from time to time, to

analyse his sensations. While he was thus engaged the old man (such are Leonardo's words) "in the act of seating himself on a bed, without other movement, and without any accident, passed from this life." Leonardo lost no time in making the necropsy to determine the cause of "so sweet a death" (*di si dolce morte*) and found it in "defect of the blood which sustained the heart." We have, we think, quoted enough to prove the interest of the "Dell' Anatomia" to all students of the history of medicine as well as to those others who would promote a better understanding between fine art and science.

THE PREVALENCE OF SMALL-POX.

THE following figures show the number of patients admitted to the various hospitals of the Metropolitan Asylums Board for the dates mentioned. On Saturday, August 30th, there were 2 fresh cases; on Sunday, the 31st, there were no fresh cases; on Monday, Sept. 1st, there were 2 fresh cases; on Tuesday, the 2nd, there were 3 fresh cases; and on Wednesday, the 3rd, there was 1 fresh case. The number of cases of small-pox intimated to the Local Government Board for Scotland from August 16th to the 31st inclusive was 7, of which 5 came from the county of Edinburgh and 2 from the county of Lanark.

AT a meeting of the United Grand Lodge of English Freemasons on Wednesday last, on the proposition of the R.W. Deputy Grand Master, the Earl of Warwick, the sum of 500 guineas was voted to the fund raised by R.W. Bro. the Lord Mayor of London towards the King's Coronation gift which is to be devoted to the aid of the metropolitan hospitals. Grand Lodge has on previous occasions made very handsome contributions to His Majesty's Hospital Fund for London.

MR. JOSEPH SMITH, M.R.C.S. Eng., D.P.H. Camb., &c., Bedford-park, Chiswick, late President of the Incorporated Medical Practitioners' Association and President of the Society of Members of the Royal College of Surgeons of England, is a candidate for the seat on the General Medical Council shortly to be vacant owing to Sir Victor Horsley's term of office coming to an end.

THE dinner and presentation to be given to Mr. Alfred Willett by his former house surgeons on the occasion of his retiring from the post of surgeon to St. Bartholomew's Hospital will be held at the Imperial Restaurant, Regent-street, London, W., on Tuesday, Sept. 30th, at 7.30 P.M.

Dr. Francis William Clark, the medical officer of health of Hong-Kong and Dean of the Hong-Kong College of Medicine for Chinese, has been appointed a member of the Legislative Council in the room of Mr. F. J. Badely, resigned.

THE annual dinner of the members of the medical profession of Leeds and district, under the presidency of Mr. Edwin Lee of Dewsbury, with Mr. Mayo Robson as the principal guest, will be held on Wednesday, Oct. 1st.

CONVALESCENT HOME AT SWANSEA.—The Lord Lieutenant of the county of Glamorgan (Lord Windsor) on August 30th laid the foundation-stone, on the hillside above Cwmdonkin Park, Swansea, of a convalescent home to be used in connexion with the Swansea Hospital. The establishment of this new institution for Swansea has been rendered possible chiefly by an anonymous donation of £10,500. This has been supplemented by other subscriptions intended to allow of the original gift being reserved for the maintenance of the institution, while the site has been secured free of cost from the corporation.

THE CASE OF DR. W. T. LAW.

A MEETING of sympathisers with Dr. W. T. Law was held at the Gordon Room of the Holborn Restaurant on August 29th, Sir William S. Church, Bart., being in the chair.

Sir WILLIAM CHURCH said that they had met to take part in the concluding act of what had been a very unpleasant and regrettable incident—regrettable, not only for the trouble and anxiety it had caused Dr. Law, but also because it touched the honour of the profession. They had come together to show their sympathy, and he was glad to say in a substantial and tangible way, with Dr. Law in his disagreeable position, in which through no fault of his own he had been placed. He (the speaker) could not believe that the poor weak woman to whom not for weeks or months only but for years Dr. Law was so attentive and kind was the real plaintiff—she was but the means through which others could attack him. The medical profession was always liable to attacks of this kind; however confident they might be of the uprightness of their motives and actions they were liable to be misrepresented and the moral they should draw from this and other similar cases was that whatever might be their position they should protect themselves, as they did their property by insurance, by joining medical defence unions. Dr. Law had come successfully and triumphantly through the ordeal, but it was not possible in many cases for individuals adequately to defend themselves. They congratulated Dr. Law most heartily on the outcome of the proceedings so vexatiously brought against him.

Dr. R. PARAMORE said that it gave him great pleasure to see in the chair such a distinguished member of the profession as the President of the Royal College of Physicians of London. He was glad to say that the Law Fund was in his opinion a great success. There were difficulties in the way which had to be overcome. There was the erroneous impression that Dr. Law did not need assistance. Some, too, considered that he ought not to be helped because he had not availed himself of the advantage of joining one of the excellent medical defence societies. Yet they had met that day to celebrate not merely a brilliant pecuniary achievement to the extent of more than £700 but a grand "moral victory."

Mr. J. S. COTMAN, the chartered accountant, having read his report

Dr. J. G. GLOVER proposed the following motion:—

That this meeting rejoices at the success of the Law Fund and congratulates Dr. W. T. Law on the practical sympathy he has obtained from nearly 700 members of the medical profession, besides some members of the public.

Dr. Glover thought that the movement had proved a great success and one that showed what the profession could do when it recognised its own solidarity and put its shoulder to the wheel. The contributions came from all classes in the profession—from consultants like the chairman and from hard-working general practitioners. It would be easy to under-rate the sacrifice implied in such a subscription list on the part of many practitioners whose work was hard and whose income was altogether disproportionate. The result reminded him of a similar success some years ago in a case taken up very heartily by Sir William Jenner, then the President of the Royal College of Physicians of London, whose successor as well as the President of the Royal College of Surgeons of England and the Master of the Society of Apothecaries had given their hearty and valuable help. Dr. Glover strongly endorsed the advice of Sir W. Church that all practitioners should protect themselves by being members of one of the efficient defence unions of the profession. History showed that even eminent consultants as well as general practitioners were liable to the risk of unprincipled and ungracious prosecutions. Reverting to the success of the fund it was satisfactory to recognise the sympathy of the public. This was shown by the action of the jury and the words of the judge at the trial as well as in the subscription list. He had much pleasure in proposing the motion.

Dr. W. EWART, in seconding the motion, referred to the gratification experienced by those who were present and a large body of sympathisers at the thought that Dr. Law had been effectually helped by the fund, and that after the severe strain which he had undergone he was able to attend the meeting in unimpaired health and spirits.

Mr. CHRISTOPHER HEATH proposed—

That the best thanks of this meeting be given to the Editors of THE LANCET, the *British Medical Journal*, and other medical papers for the invaluable aid they have given to the movement.

Mr. Heath had much pleasure in bearing witness to the powerful influence for good that the medical press possessed and how wisely and generously it used its ability not only for the benefit of the profession but for the public welfare.

Mr. ONSLOW WICKHAM said that he had much pleasure in seconding the motion. Medical men had read with sympathetic interest what had appeared in the medical press relative to Dr. Law.

Sir WILLIAM CHURCH then presented a cheque for £500 (signed by himself, Sir H. G. Howse, Dr. Burton Brown, and Dr. Paramore) to Dr. Law who had previously received £110. The balance of the fund will be duly paid after the expenses have been deducted.

Dr. LAW, in acknowledging the presentation, said that his heart was so full that he felt it difficult adequately to express his sense of gratitude to those members of the profession who had so generously come forward in his behalf in raising so handsome a sum as had been presented to him. He also wished to express his grateful acknowledgments to Sir William Church for his great kindness in coming that day to preside over their gathering and also for having associated himself with Sir H. G. Howse, President of the Royal College of Surgeons of England, and Dr. Brown, until recently Master of the Apothecaries' Company, as official custodians of the fund. To both these latter gentlemen also he desired to offer his most sincere thanks. Although not strictly germane to the matter in hand he would like publicly to express the deep obligation that he felt to those members of the profession who so freely came forward at the trial to support him as witnesses, and though very few were called, because the jury stopped the case, he was none the less in their debt. Without the help of his medical brethren at that time the result might have been less satisfactory than it was. With regard to the splendid gift which he had just received there was one man to whom he could not sufficiently express his deep acknowledgments and that was Dr. Richard Paramore, his old friend and fellow student. To his untiring energy, enthusiasm, and devotion was due the wonderful success attained, and he should always feel the deepest gratitude to him. To Dr. C. Theodore Williams, Dr. R. A. Gibbons, and Mr. H. C. Mends Gibson he was also under obligations of a very special kind for most valuable help and sympathy. He desired, in conclusion, to express through that meeting his sincere and heartfelt thanks to all those members of the profession who had so kindly and generously helped him in his troubles.

Dr. EWART proposed the following motion which was carried by acclamation :—

That the thanks of this meeting and of the subscribers to the fund be awarded to Dr. Paramore for the good work he had done in initiating the fund and in making it so great a success.

Many had felt for Dr. Law, but their sympathy could not have taken a practical shape but for the opportunity which had been given to them by Dr. Paramore's energy.

Dr. BURTON BROWN said that he had the greatest pleasure in seconding the motion for a vote of thanks to Dr. Paramore for his very successful and great efforts in advocating Dr. Law's cause and obtaining this fund.

Dr. PARAMORE, in reply, said that it was very gratifying to him to know that his efforts had been so successful. These prosecutions would never occur if medical men would do to each other as they would be done by.

The meeting closed with a motion, proposed by Dr. LAW, thanking Sir William Church for his services in the chair. The motion was seconded by Dr. GLOVER who was pleased to think that it was on his suggestion that the heads of the medical corporations had been asked to accept the duty of trustees of the fund. It would be well for the profession if its official chiefs and the great body of members could always act together.

Sir WILLIAM CHURCH, in responding, said that what he had done was nothing compared to what others had done in the matter and it was a pleasure for him to be present and to assist as far as he could.

Dr. PARAMORE proposed a vote of thanks to the proprietors of the Holborn Restaurant for generously lending for the second time the use of one of their magnificent rooms without payment, and this was carried with cheers.

THE ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD FOR THE YEAR 1900-1901.[1]

SECOND NOTICE.[2]

IN the first notice of this report a general account was given of the contents of the volume and reference was made to some of the researches which were carried out by the scientific members of the staff with a view to improve the quality of the lymph which is supplied by the vaccination department for the use of the public. The energy displayed by the department in regard to this subject forms a marked contrast to the apathy of the people. Whilst every effort has been made on the one side to increase the efficiency of the lymph and to minimise the risks of the operation, on the other there has been an increased tendency to avoid the benefits freely offered. The moral weakness of a Government with a strong majority fostered and encouraged the prejudices of the foolish and of the ignorant. "Conscientious objection" to vaccination under the Vaccination Act of 1898 was allowed to take the place of the operation itself, for it became "registrable"—that is to say, an official record of the objection became equivalent in the eyes of the law to vaccination itself. The Act came into force on August 12th, 1898, and Mr. W. H. Power's report shows that "thereafter for four months it was open to parents to apply for certificates exempting from vaccination children born before the passing of the Act. The effect of this law was that no less than 203,413 certificates of 'conscientious objection' relating to 230,147 children were received by vaccination officers in England and Wales."

In the present report there is a digest of the vaccination officer's returns with regard to children whose births were registered in the year 1898 (Appendix A, No. 1, p. 1) and a similar digest for the year 1899 (No. 1, Appendix A, p. 21). The latter is introduced by a rather curiously worded preface which tells us that "this digest, which is subject to correction, was able to be inserted just before the volume went to press." The inference seems to be that the digest has been promptly, if not hurriedly, prepared and that perhaps a tribute should be paid to the despatch with which the work has been done and that due allowance ought to be made should it hereafter prove that it is in any respect inaccurate. It is, of course, evident that a large mass of figures had to be dealt with, but the fact that the digest of the returns for the year 1899 are not published until the second half of the year 1902 appears to savour rather of delay than of promptitude.

The summary of the vaccination officers' returns for the years 1898 and 1899 is given below. In order at the same time to save space and to show at a glance the corresponding figures for these two years those having reference to the latter year are in each case printed within brackets.

Of 923,059 (929,189) births returned to the Board by the vaccination officers in England and Wales as registered during the year 1898 (1899), the number which at the time the return was made had been registered as successfully vaccinated was 562,737, being almost 61·0 per cent. of the whole (617,113, being 66·4 of the whole), and the number registered as having died unvaccinated was 110,912, or 12·0 per cent. of the whole (113,516, or 12·2 per cent. of the whole). Of the remaining 249,410 (198,560) children, 3232, or 0·35 per cent. of the whole (5379, or 0·6 per cent. of the whole), had been registered as insusceptible of vaccination; 4 (4) cases as having contracted small-pox; 16,921, or 1·8 per cent. (16,605, or 1·8 per cent.), as having their vaccination postponed by medical certificate; and 47,423, or 5·1 per cent. (33,573, or 3·6 per cent.), in respect of whom certificates of conscientious objection were received; leaving 181,830, or 19·7 per cent. (142,999, or 15·5 per cent.), as "removed," "not to be traced," or otherwise unaccounted for. If from the 923,059 (929,189) births returned by these officers deduction be made of the deaths that took place without vaccination, it appears that, of the surviving 812,147 (815,673) children,

[1] Thirtieth Annual Report of the Local Government Board, 1900-1. Supplement containing the Report of the Medical Officer for 1900-1. London: Eyre and Spottiswoode. 1902. (Cd. 747. Price 6s.)

[2] The first notice was published in THE LANCET of August 23rd, 1902, p. 548.

there were registered at the time of the return 69·3 per cent. (75·7 per cent.) as successfully vaccinated; 0·4 per cent. (0·7 per cent.) as either insusceptible of vaccination or as having had small-pox; 2·1 per cent. (2 per cent.) as under medical certificate of postponement; and 5·8 per cent. (4·1 per cent.) in respect of whom certificates of conscientious objection to vaccination had been obtained; leaving 22·4 per cent. (17·5 per cent.) as at that time still unaccounted for as regards vaccination.

The proportion of cases unaccounted for in the metropolitan returns for 1898 is 31·2 per cent. (for 1899 it is 27·7 per cent.); in the provincial returns 19·6 for 1898 (and 15·4 per cent. for 1899).

It must be admitted that to the vast majority of people large numbers of figures presented in tabular form are puzzling rather than interesting, but even the vaccination tables contain some curious pieces of information which are worthy of note. One such fact is that the objection to vaccination affects some places markedly more than others. The returns of the year 1898 show that the number of births in Leicestershire was 12,878, and of these children only 1228 were successfully vaccinated and four were stated to be insusceptible to vaccination. No less than 3661 certificates of "conscientious objection" to vaccination were received and the number of the children who died unvaccinated (1874) was greater than the total number of children vaccinated. Finally, for the series of years (1893-97) a huge number of children remained unaccounted for when the returns for the years were received, the number amounting to no less than 72 per cent. of the total number. In Rutlandshire for the same period the corresponding percentage was 5·3. In London the proportion of children "unaccounted for" has also been found to vary greatly in different parts of the town, from 5·3 in St. George's, Hanover-square, to 68·2 in Bethnal Green.

Mr. Power calls attention to the fact that the metropolis is at a disadvantage as compared with the country at large in regard to the protection against small-pox adopted for its infant population. The popular appreciation of the benefits of vaccination is making no progress; on the contrary, unless an alteration has taken place since the collection of the statistics given in the present volume, it is evident that there has been a regular and steady decrease in the adoption of vaccination. This is very clearly shown in a table given by Mr. Power which is quoted below.

Periods.	Percentage.	Abstention from infantile vaccination.
	Metropolis.	Rest of England and Wales.
Average of 1873-77	8·1	4·1
,, 1878-82	6·8	4·4
,, 1883-87	7·4	5·7
,, 1888-92	14·1	11·2
Single year, 1897	23·9	19·7
,, 1898	34·4	25·4

The report gives a good deal of information in regard to inspection of public vaccination, particulars as to education in vaccination, an account of the work done at the animal vaccine establishment and of the changes which have taken place in the composition of its staff and in its working arrangements.

The reports of the medical inspectors of the Department are always full of interest and full of instructive details. Mention has already been made of the fact that some of the inspectors whose reports are especially marked by great ability and thoroughness have during the year under review been engaged in other work, but it is pleasing to note that the best traditions of the medical inspectors of the Board are in several cases being carried on without a break. The amount of what may be called routine work which has been done may to some extent be gauged by the fact that 21 sanitary districts were visited by the medical inspectors with special reference to outbreaks of infectious disease and to general sanitary circumstances and administration; local inquiries were held in connexion with the provision of hospital accommodation at 64 places; in five places inquiries were made with reference to sewage disposal; in two districts local inquiries were made in regard to water-supply; in four places inquiries were made in regard to scavenging; in five places investigations were made as to the desirability of adopting the Board's model series of by-laws; special visits in regard to vaccination administration were made in 16 places; 57 port and riparian districts were visited in regard to special precautions against the plague; and 17 conferences of sanitary import have been held with local officials.

The abstract of medical inspections made in 1900 with regard to questions concerning the incidence of disease on particular places and to questions concerning local sanitary administration contains information as to the condition of 15 places which for various reasons were specially brought to the notice of the Local Government Board. At Bishop's Auckland (in Durham), which has a population of 10,000, enteric fever was prevalent during the years 1898, 1899, and 1900. An inquiry into the cause of the visitation was instigated at the instance of the Durham County Council. Dr. S. W. Wheaton found that the water-supply was derived from the river Wear, which was much polluted, and that the water was not always filtered before its distribution, that the sewers were made of tile and rubble, that the house drainage was defective, and that the contents of the privies were thrown into yards and into the streets. There was no disinfecting apparatus. Dr. Wheaton attributed the outbreaks of typhoid fever to the contamination of the water-supply.

An inquiry was held at Failsworth as to the supposed inadequate remuneration of the medical officer of health. The amount of the salary is not stated in the report, but Dr. W. W. E. Fletcher was of opinion that it was insufficient in amount. In the course of this inquiry information was obtained which should prove of interest to the inhabitants of the important borough of Oldham. The Failsworth district is supplied by the water mains of the Oldham corporation and Dr. Fletcher reports that this water is derived from gathering grounds and supplied unfiltered.

In the Farnworth urban district (Lancashire) an inquiry was instituted in consequence of the prevalence of typhoid fever. Dr. Fletcher found that the water-supply was obtained from the mains of the Bolton corporation and that the gathering ground from which the water comes is not free from the risk of contamination. Dr. Fletcher reports that enteric fever has for some years past been endemic in the Farnworth district and that it has not assumed epidemic proportions; he suggests that "probably it has been fostered by the system of excrement disposal in vogue in the district." This is rather a dark saying. It would be well if the corporations of Oldham and of Bolton would take all necessary precautions to ensure the absence of pollution from the gathering grounds from which they derive their water. It is not only more safe, it is also less expensive to undertake such work before the outbreak of an epidemic. In the case of the Bolton water it is distinctly stated in the report that there is risk of contamination, and although little information is given in the case of Oldham it would be well for the corporation to appreciate the fact that filtration of the water would not be disadvantageous.

At Hexham in Northumberland there was an outbreak of typhus fever. The source of infection was almost certainly traced to a gipsy encampment, and from the first case infected at Hexham a definite chain of infection was established. Most of the cases occurred in some insanitary and overcrowded property. There were altogether 32 cases and five deaths. All the fatal cases occurred in people over 40 years of age. At Llangattock in Brecon an inquiry was made into the cause of the prevalence of diphtheria. Many cases had occurred there and it was shown that the sanitary condition of the place was generally defective.

At Pennal village (Merionethshire) and Pontypridd (Glamorganshire) inquiries were made in regard to the undue prevalence of diphtheria. In both these instances there was deficient provision for isolation. At Prestwick urban district, Lancashire, where diphtheria was also unduly prevalent, the sanitary conditions were found to be defective, but active measures were taken to prevent the spread of the disease by infection. The Romney Marsh rural district of Kent came under the notice of the Local Government Board because they refused to appoint a single medical officer of health for their whole district, and concerning the point at issue they made a statement which Dr. Darra Mair states he "found to be untrue." The district is a large one, including nearly 30,000 acres, and the population, which numbers 2893, is widely dispersed through it, the most populous village containing only 560 persons. The general sanitary condition of the district is unsatisfactory, and it is

obvious from the report that an energetic medical officer of health and an active inspector of nuisances might find plenty of work in the marsh. The Romney Marsh rural district council has no desire to pay such officers and it is not certain that it would not prefer to do without them.

At Nailsworth in Gloucestershire an inquiry was instituted in regard to the general conduct of the urban district council. Dr. F. St. G. Mivart found that the method of excrement disposal varied. Some of it was thrown on to small gardens, some was conducted through short sewers to a stream which flowed through the town, and some passed into a pond which communicated with streams. The local authority maintained that the sewers were practically untainted and that there was no reason for entertaining any drainage scheme. At Nuneaton and Chilvers Coton, an urban district in Warwickshire, having a population of 15,000, typhoid fever was prevalent during the year 1899 and 16 deaths occurred amongst 114 cases. Dr. R. W. Johnstone ascribed the outbreak to "pollution of soil, personal infection, and pollution of well water."

The Stroud (Gloucestershire) rural district council made a complaint of the sewage sent down from Nailsworth. This district contains a population of 30,000 and the sanitary arrangements leave much to be desired. Excrement is disposed of either by discharging it into streams or into fissures in the limestone rocks. Sewerage is very limited, but its extension has been planned and is "impending," as Dr. Mivart reports. "Impending" is rather an ominous word. It may be hoped that the sewers, if extended, will be so laid that the sewage will pass in the desired direction. This point, though of importance, is often neglected in country towns and in rural districts.

Two of the most interesting and the best written reports are that on the borough of Boston (Lincolnshire) by Dr. S. Monckton Copeman and that on the Northam rural district (Devonshire) by Dr. R. J. Reece. The inhabitants of Boston have suffered much from typhoid fever and from diarrhœa and the corporation has failed to comply with recommendations which have previously been made to it as the result of the former investigations of the medical inspectors of the Board. Boston is a low-lying town, situated on the river Witham, and has an estimated population of 16,000 and a rateable value of £47,240. The ancient waterways have been to some extent used as sewers and in places these have been covered by buildings. The condition of things seen in parts of Boston to-day closely resembles that which existed in London when the Fleet stream was encroached upon by the adjacent land-owners. There is at Boston a court of commissioners of sewers and the dyke reeve, an official of the court, has charge of dykes and sewers. The sanitary authority of Boston appoints members to the court but has no direct authority over the officers. The bacillus coli has been frequently found in the drinking water which is supplied by a company. An ingenious explanation has been offered as to the presence of this bacillus in the water. It was observed that hares browsed in the early morning on the sloping sides of the reservoirs of the company. It was suggested by the manager of the water-works that the evacuations of these animals might supply the bacillus. The company, it is said, then adopted the precaution of putting up wire-netting to keep off the hares. The investigation into the general sanitary conditions of Boston was made with great care and ability and the report is well worth reading. It is not possible to devote the space necessary to summarise it here, and it can only be said that the present state of Boston is in every respect deplorable. The town council would be well-advised to carry out the recommendations which it has received. The Council, however, "do not think that any fresh system of town drainage would lessen the sickness or make the town more healthy." This view is unduly pessimistic. A council so wise in its own conceit often requires the immediate presence of a fearful epidemic to make it alter its opinion. Such an epidemic may be expected. Boston is not a "residential place" nor is it overcrowded with visitors. The few who go will for the present do well to avoid drinking water whilst there and to sleep elsewhere. The smells of Boston resemble those of Bruges, but the other points of interest are less numerous.

An excellent account is given of the sanitary condition of Appledore, a small port in North Devon situated at the junction of the Barnstaple and Bideford rivers. The inquiry arose from the fact that the reports of the medical officer of health of the Northam urban district (which includes Appledore) were deficient in regard to information required by the Local Government Board to enable an estimate to be formed of the sanitary condition. The Northam district comprises Westward-ho, a comparatively new and newly-named resort well known to all who as play at golf; Northam, a hill village; Northam Ridge, a rural district; and Orchard-hill, a residential neighbourhood. Appledore was reported upon in the year 1871 by the late Sir Richard Thorne and in 1894 it was visited in the course of the cholera survey. At the time of the latest survey the sewerage system of the town was found to be not in accord with modern requirements and there was a scarcity of water. The medical officer of health of the district was 72 years of age on his appointment and he receives an honorarium of £10 per annum. He was a native of Appledore and commenced his professional training in the year 1843 when he was indentured to his father. In later years Dr. Reece thinks that his professional work has not been such as to keep him instructed as to the progress of sanitary knowledge, and his annual reports have not given information as to the hygienic condition of his district, of the work carried out for the improvement of the sanitation, or of the measures which ought to be adopted. In regard to infectious diseases the medical officer of health has, in Dr. Reece's opinion, acted under the mistake that it was his duty to visit and examine patients whose names have been "notified" to him and to revise the diagnosis should occasion require. The sources of the water-supply at Appledore were open to contamination and the amount obtained was insufficient, but work was in progress to obtain an adequate supply from a distance.

THE TRANSACTIONS OF THE BRITISH CONGRESS ON TUBERCULOSIS, 1901.[1]

INTRODUCTION.

WE published last year a full account of the proceedings at the British Congress on Tuberculosis, recognising that the Congress was an opportune and admirable recognition of the determination recently arisen among civilised nations to fight systematically against a devastating disease. The Congress was, in fact, not so much a meeting of scientific men to discuss therapeutic measures—though it was, of course, this—as an expression of the feeling that Governments and peoples must support their sanitarians and reinforce their measures of State medicine if tuberculosis is to be prevented from exacting year by year a terrible toll of lives which could be saved by preventive measures. The official transactions of the Congress have now been published, as we have already announced, and a review of the four volumes now before us gives us an opportunity of estimating the value of the work done and making a more or less general summary of the proceedings that took place under the headings of medicine and pathology.

For example, the various communications dealing with the uses of tuberculin show how much there yet remains for the practical pathologist and physician to do before a definite decision can be arrived at. Again, with regard to the influence of climate upon tuberculosis and the part played by the sanatorium treatment, we get by studying these transactions and comparing the different experiences of physicians of various nationalities an all-round idea of the value of systematic treatment that no previous work has offered. The published proceedings of the Congress confirm the opinion that we expressed last year that the work done by the Congress was of incalculable use to the cause of preventive medicine, and we trust that future international deliberations will be held in support of a continued movement of civilisation against its great enemy—tuberculosis.

TUBERCULIN.

A discussion upon tuberculin in which the Sections of Medicine and Pathology were supposed to combine appears to have been left entirely in the hands of the physicians and to have been carried on from the clinical point of view. Laboratory work is represented by a paper upon Immunity and Sero-therapy in Tuberculosis from Dr. Tatsusabaro Yabé, chief medical officer of the Japanese Navy. This work from M. E. Roux's laboratory by analysis of bacilli

[1] Transactions of the British Congress on Tuberculosis for the Prevention of Consumption, London, July 22nd to 26th, 1901. Vols. i. to iv. Edited by the Honorary Secretary-General. London: William Clowes and Sons, Limited. 1902.

finds (*a*) a tuberculo-mycoprotein which provokes leucocytosis at the point of injection and (*b*) a nuclein-like bacterocidin which induces obliteration of blood-vessels. The former induces some immunity of an antitoxic, and the latter some of a bactericidal, character.

Immunity is not readily perceived; its existence is shown by the phenomenon of Koch in the guinea-pig. This investigator obtains a serum by injecting the above constituents of bacilli into goats. He then treats guinea-pigs with the serum, some before and some after infection with tubercle; some of the former showed effects by their survival, but none of the latter. At present he states that he has found nothing for therapeutic use.

Many medicinal preparations from cultures of tubercle bacilli have been used by Dr. Charles Denison; he tabulates his experience in 200 cases. It is difficult to compare these results; perhaps they are equally favourable and promising.

In the discussion while the most experienced in the use of tuberculin were also those who saw most benefit in the drug, none provided a clear comparison of similar series of cases treated with or without tuberculin. Seeing the advance now in other methods such a comparison will take years longer to be effected. The impression given by this discussion may well be stated under those three headings taken by Professor McCall Anderson.

1. Is it safe to use tuberculin? Professor W. Osler and Dr. Moeller had never seen any injurious effects and Professor McCall Anderson said that its use is quite safe. This may be taken to refer to the present dosage. Professor Koch tells us to commence with one-tenth of a milligramme, to employ it only in a patient without fever, and upon repeating the drug upon the second day not to increase the first dose, as he and many others note that the same dose frequently gives a more severe reaction upon the second occasion. Dr. Moeller quotes a case in which it was weeks before the repeated injection of one-twentieth of a milligramme failed to give rise to fever, and Dr. G. A. Heron a case in which an initial dose of one-third of a milligramme in an enfeebled and severely affected patient was followed by a rapid deterioration which he considered to be unexplained. In the last instance the dosage exceeded the limit now given by Koch and perhaps the new limit will not give rise to those experiences which led Dr. W. R. Huggard to discontinue its use.

2. What is its diagnostic value? Dr. Eric France has fully shown its trustworthiness by testing 75 patients, tuberculous or non-tuberculous, one half of whom have since died and upon whom necropsies have been made. Dr. A. K. Stone pointed out that small inconsequential lesions may give very misleading information in important cases. Such an experience is no doubt unfortunately possible; at the same time it may be thought that such cases as Professor McCall Anderson gave instances of—doubtful lymphadenoma and doubtful lupus—are very prone to undergo mistaken treatment unless this test be employed, and its occasional careful use may become more general with advantage.

3. What is its therapeutic value? Dr. Heron reported in full 31 cases in 1890 and seven years later one-half of those patients could be traced and were well; such a London hospital experience of pulmonary tuberculosis is remarkable. Nearly three-fourths of the patients in a series of 200 cases treated in the last 10 years by Dr. Goetsch were quoted to be well; these were treated with doses of only 0·00001 gramme of old tuberculin as a rule; they were treated for a few weeks or months and after an interval again for a term. So long a duration must be compared with sanatorium treatment, which in selected cases will claim equally good results. It seems evident that the question can only be threshed out in a sanatorium which will for a term simply add this treatment to its other methods.

Empiricism in tuberculin administration seems to teach us that the local effects upon the tubercle must not be gross and palpable; perhaps even a dose not sufficient to induce fever is best. If the latter prove to be the case a more extended usefulness may be found and those who must be out-patients might be treated with it. If this agent, which induces in the guinea-pig the phenomenon of Koch, in dogs an amelioration of experimental tuberculosis of the peritoneum described by Dr. Denys, and in man the inflammatory reaction round a tuberculous focus or nodule of lupus tissue, should continue to have no therapeutic use it would be an *opprobrium medicorum*.

Professor Koch has formulated the present rules for treatment. He restricts its use to cases definitely without fever and cases not advanced in disease. The lessened dose and lessened reaction or no reaction afford a treatment quite different from that introduced 12 years ago as tuberculin treatment. Dr. Heron remarked how tuberculin had been both made and unmade in Germany. So far as the Congress assisted in the re-making it is gratifying to see Great Britain providing apparently as much information as Germany.

A change of view is being put forward now which draws attention to other organisms as much as to the bacillus of tubercle. Professor Koch spoke of morbid processes caused by even streptococci and staphylococci rendering a case unsuitable for tuberculin treatment, and such mixed infection he considered to be the usual associate of the symptom—fever. Professor Nolen uttered a warning against viewing every feverish reaction as evidence of mixed infection. Sir R. Douglas Powell referred to the great importance of mixed infection. What is its importance? Are we to consider that the additional organisms deserve the most attention or are they but unimportant epiphenomena?

In the hope of finding some elucidation of these secondary infections so often referred to in the discussion upon tuberculin we turn to the Transactions of the Section of Pathology, where it has a place upon the programme of discussions. The able opening of the subject by Mr. A. G. R. Foulerton met, however, with little seconding or response and elucidation is limited to the contribution of the opener and a valuable paper by Professor Ophüls. The multiplicity of data—clinical, histological, and bacteriological—that demand investigation in each case is so great and the problems then presented by the facts elaborated are so abstruse that few could be found who had elaborated these studies and were ready to respond to the challenges thrown out by the opener of the discussion.

Mr. Foulerton finds in secondary infections the main explanation of the symptoms and course of most cases of pulmonary tuberculosis; other competent investigators, on the other hand, deem them to be most subsidiary factors. It follows according to Mr. Foulerton's point of view that the treatment of pulmonary tuberculosis, especially sanatorium treatment, owes its success to its influence upon secondary infection. While we know to some extent the influence of treatment upon the bacilli of tubercle and their disappearance from the sputa, we have not any account of the disappearance of the secondary organisms. There are five common predominating organisms of secondary infection and several not so common. If they do so dominate the position wonder may be expressed at their family likeness in symptoms, and still more at the clinical discrimination that had named as phthisis exactly that ailment which held the bacillus of tubercle in evidence after Koch's discoveries.

Professor G. Sims Woodhead points out that although the most infective of these secondary organisms, the streptococcus pyogenes, is common, pyæmic abscesses do not occur, and Mr. Foulerton declared general blood infection not to be a factor of any consequence. That by no means a little information is yet wanting on these topics is emphasised by the difference of view as to matter of fact evinced by the opener of the discussion and Professor Ophüls; the one does not find active destruction of tissue by pure infection of bacillus tuberculosis, the other does. This difference of opinion may be removed, suggests Professor Ophüls, if it be admitted that the damage done apparently by pure tubercle is really due to pyogenic organisms that have disappeared. How deeply yet, then, must the pathologist delve before he can give the clinician light on this question.

In the contribution of Professor Ophüls the most valuable researches into 39 cases (consecutive cases) have been made. It is well for the reader to turn to the synopsis of cases classified according to their infection and whose symptoms are noted. Let him see if the clinical history will afford a diagnosis of cases of mixed infection from others; we are conscious of an inability to find it. It is evident that this field of pathogenesis must await future congresses for its solution.

CLIMATE AND SANATORIUMS.

The Section of Medicine discussed climate—both the effects of climate and the indications for special climates. Sanatorium treatment was discussed upon another day.

The British physician may be said to have the most widely varied experience of climate, and it was on this account appropriate for the Congress to take up the subject. Dr. C. Theodore Williams and Dr. I. Burney Yeo introduced the subject succinctly, but the discussion drifted often into the

domain of sanatoriums, and no doubt we shall never in the future be able to discuss these questions with so much dissociation as was possible in 1901.

It is satisfactory to find that a general agreement marks the opinions expressed, both as to the effects of, and indications for, climates. Sir Hermann Weber agreed with the openers of the discussion that high mountain resorts have the widest range of applicability to moderately advanced cases. The effects of high altitudes were clearly analysed by Dr. Amrein and Dr. Huggard. The heat-abstracting power—with its attendant increased combustion, tissue change, and, according to Dr. Amrein, increased quantity of hæmoglobin—is the dominating effect. This low temperature is a tax upon the powers of the patient, and the indications for climate were most frequently discussed in the form of contra-indications to high altitude and the inability of the patient to show the requisite powers of heat production. Low barometric pressure and cold affect the circulation. Dr. Amrein in his paper upon the Physiological Principles of High Altitude Treatment told us that in the Alps at Arosa the highest average temperature is only 54° F.; accordingly it is readily explained that the Alps are contra-indicated in cases with organic heart disease, feeble circulation, and even in patients sensitive to cold. A few years of life, the difference in the age of a patient from 40 to 50 years, may commonly be accompanied with such diminution of the power of reaction to cold as in itself would no longer allow of the recommendation of high altitude. The dryness of the air precludes cases with much bronchial catarrh from benefiting largely, and it is the same in a catarrh accompanying tubercle of the larynx. Diseases of the kidney and albuminuria are prejudicially affected by cold; so this complication is a contra-indication of sojourn in high altitudes. The same cause, it may be, places intestinal tuberculosis or diarrhœa in this category. Emphysematous cases, advanced cases, those acutely febrile and those with large cavities and hæmorrhage may be added to complete a list which should be governed by physiological principles of selection. Dr. Theodore Williams's 385 patients were by no means quite early cases, one-third had excavation, and these resulted in arrest for 20·6 per cent. and improvement for a further 41 per cent.

The influence of sunlight and its enhanced power at high altitudes were insisted upon by Dr. Denison. Dr. Huggard remarked upon the rapid disappearance of slight anæmia, and Dr. Amrein recorded the evidence of several investigators to the effect that a real increase of hæmoglobin and corpuscles occurs; but seeing that now winter is as effective as summer in the progress of patients at sanatoriums we desire further evidence of the influence of sunlight and its mode of action.

Sir Hermann Weber, Professor Christian Gram, and Dr. Armaingaud all reminded the Congress of the seaside sanatoriums and how they are unequalled for surgical tuberculosis and for catarrhal cases of phthisis. The establishment at Margate, a pioneer work of more than a century's standing in this country, was pointed out by Sir Hermann Weber as an instance of the Englishman's habit of deprecating his own good work, for it has recently been receiving poor support quite unjustifiable in so useful an institution.

Sea voyages were very generally condemned. They no longer consist of a seven months' sailing trip, and such discomforts as those depicted by the late Sir William Flower are too likely to be ill-endured.

Desert climates are allowed to have a wide field. Dr. Yeo mentioned the rheumatic or gouty cases of the fibroid or pleurogenic type as especially suitable. Dr. F. M. Sandwith pointed out that European residents in Egypt are practically exempt from tuberculosis.

Our French *confrères* contributed several interesting papers, especially noteworthy being that in which Dr. Lannelongue, Dr. Achard, and Dr. Gaillard endeavoured to state the effect of climate on the guinea-pig in precise terms and to apply the result to man. 50 guinea-pigs under similar conditions, but at three different climates, were inoculated with tubercle. The main result was evidence of variability of lesion. To say on evidence of such a nature that climate has been unduly valued seems a *non-sequitur*. Climate is sought, as we have seen, always for the individual and not for the tuberculosis. Stamina, absence of catarrh, and healthy appetite are great features in an individual but not in these animals, who also are not buoyed up by cheerfulness and hope. At the same time it may readily be admitted, with these writers, that internal causes—the resistance of the individual—have a greater determining power on the progress of the disease than has simple climate.

Various places have their climates described. Dr. F. Allen's sketch of Natal gives us at the same time quite a glimpse of the whole country. Dr. Stephani gave his results in 150 cases at Valais, Dr. Auffret condemned the climate of Brest, and Dr. P. S. Hichens inquired if any types of pulmonary tuberculosis are unsuitable for treatment in the British Isles.

Care without climate is better than climate without care. This good aphorism of an opener of the discussion on climate marks the greater importance of the discussion upon sanatoriums. In the congregations of the sanatorium, said Professor T. Clifford Allbutt, we have learnt individual treatment. The lesson expounded by Professor Allbutt with lucidity and eloquence has been published in full already in our pages.[1] But little was added by subsequent speakers to his admirable exposition. He laid no special stress upon any one of the factors in treatment whether air, rest, food, exercise, or mental influence, as worthy of greater attention than another; how rightly is evident, for of those speakers who expressed their esteem for one agency as more influential than others one mentioned air, another rest, and a third feeding. Each factor was said to require skilful use and to be capable of abuse, the warning being given to avoid a sanatorium when detailed attention gives way to simple routine. "Rules," said Dr. Huggard, "are a poor substitute for principles."

What are the results of the treatment? Good, very good, no doubt, but duration of recovery, the only test, has not in this country had opportunity of expression. Dr. F. W. Burton-Fanning made a gallant attempt in giving the data of 12 British sanatoriums and in drawing up his report in a form that appears to us to be a closer approximation to precision of statistical information than has hitherto been published. He has forsaken the old first, second, and third stages as the basis of classification and has taken three classes upon which there can be no difference of opinion when future investigators make comparison:—(1) cases with habitual rise of temperature to 99·6° or higher; (2) cases with rapid cardiac action without fever; and (3) cases without fever or rapid cardiac action. 25 per cent. (1); 4 per cent. (2); and 63 per cent. (3) were the relative recovery rates. Over 700 cases are reported upon from British sanatoriums; about 400 cases of high altitude treatment are reported upon by Dr. Theodore Williams and 150 by Dr. Stephani. The groups are not perhaps upon a sufficiently similar basis for comparison; it is remarkable that the arrest, quiescence, amelioration, cure, and half-cure total up to 77, 75, and 62 per cent. in these three instances of statistics and results.

Dr. J. Kingston Fowler drew attention to the most important item in the report on British sanatoriums: "Only 52 patients can be described as cases of slight lung mischief; 46, or 88·4 per cent., of these patients with strictly limited disease did well and attained relative recovery with arrest of their disease." Every trustworthy report from sanatoriums, said Professor Allbutt, emphasises anew the remarkable success of Brehmer's system on one condition—namely, that the patient be caught at the outset of his disease. In diphtheria this lesson has been learnt, but energy in attacking early phthisis is yet often unappreciated. Again, Dr. W. V. Snow reported the result of initiating this treatment at the National Sanatorium of Bournemouth. In the early stages 63 per cent. showed apparent arrest of the disease and in 98 per cent. improvement, and this despite many leaving at the end of three months. However cheering such calculations may be they are even less convincing than is the ample evidence observed by many a pathologist that recovery is commoner than fatality in every-day life.

How are the results of sanatorium treatment gained? By perfect sanitation, skilled alimentation, and controlled metabolism; these, Sir R. Douglas Powell in conclusion said, had been in part taken for granted, in part largely dwelt upon with additional light. The alimentation factor received more elucidation than any. The clinical precaution of Professor Allbutt to examine the size of the stomach before and after a meal, so that its powers of disposing of food may be gauged, and the marking the weight that ought to be gained by a limit estimated at the normal healthy weight of the patient, as recommended by Dr. Burton-Fanning, are good methods

[1] THE LANCET, Nov. 9th, 1901, p. 1255.

to practise. That increase of weight *per se* tells little as to the future of the patient seems probable seeing that Dr. Rosenthal's patients in the second stage gained as much as, or more than, those in the first stage; that might be owing to a start further away from their normal weight. The increase of weight in different sanatoriums is not proportionate to the fulness of diet provided according to the results in the United Kingdom, nor does it bear a constant relation to the recovery rate.

Such facts as the above call for explanation and proclaim a want of guidance in the control of the daily intake of food. Dr. Noel D. Bardswell was able to render information with the precision and certainty that belongs to prolonged analytical investigations. He gave a *résumé* of the paper written in collaboration with Dr. F. W. Goodbody and Mr. J. E. Chapman which had been read before the Royal Medical and Chirurgical Society a month previously. In that paper the metabolism of six persons can be fully followed through different diets; the general statements based upon such thorough data are worthy of full attention though they may not be entirely novel statements. Appetite gives too low an estimate of requirement. In any case a very large diet is unsatisfactory. Full diets but not too large diets gave the best results.[2] It appears to be advisable to diminish the amount of food as the disease becomes quiescent and the patient approaches normal weight, but even at this period he will require a more substantial diet than when he is in health.

The factors of treatment other than diet receive little more than mere mention in the proceedings. Professor Allbutt had propounded many questions of a most practical and important kind: "Can mixed infections be recognised from fever curves?" "What estimates of improvement and what rules of prognosis can be based upon physical signs alone?" and many others, but discussion drifted away usually into the domain of State medicine. We gather some valuable information as to what was being done in different countries by their distinguished representatives—in Austria by Professor von Schrötter; in Bohemia by Dr. Dvorak; in New York by Professor Janeway and Dr. Knopf; in Massachusetts by Dr. Stone; in Copenhagen by Dr. Rosenthal; in Germany by Dr. Becher and Dr. Lennhoff; in Switzerland by Dr. Morin; and in France by Dr. Verhaeren, Dr. Frottier, Dr. Lasalle, and Dr. Baradat. Many counsels of perfection are advocated by these contributors, enough to show that far more remains to be done possibly until we get so far as classifying our sanatoriums, as pointed out by Dr. Kuss. Meanwhile it would be well if we could supply the still urgent want, the want of knowledge, by establishing a freemasonry of investigation and information among sanatoriums—a plan in which apparently the sanatoriums of France have anticipated the demand of Professor Clifford Allbutt.

(To be continued.)

THE CREMATION ACT, 1902.

THE following is the text of the Cremation Act which recently received the Royal Assent:—

2 EDW. VII., CHAPTER 8.

AN Act for the regulation of the burning of human remains and to enable burial authorities to establish crematoria. (22nd July, 1902.)

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. This Act may be cited as the Cremation Act, 1902.

2. In this Act the expression "burial authority" shall mean any burial board, any council, committee, or other local authority having the powers and duties of a burial board, and any local authority maintaining a cemetery under the Public Health (Interments) Act, 1879, or under any local Act. The expression "crematorium" shall mean any building fitted with appliances for the purpose of burning human remains, and shall include everything incidental or ancillary thereto.

3. In the application of this Act to Scotland the expression "burial authority" shall mean the parish council or town council of any parish or burgh, as the case may be, vested with the powers and duties conferred by the Burial Grounds (Scotland) Act, 1855, or any Act amending the same; the expression "the Local Government Board" shall mean the Local Government Board for Scotland; the expression "Secretary of State" shall mean the Secretary for Scotland.

4. The powers of a burial authority to provide and maintain burial grounds or cemeteries, or anything essential, ancillary, or incidental thereto, shall be deemed to extend to and include the provision and maintenance of crematoria; provided that no human remains shall be burned in any such crematorium until the plans and site thereof have been approved by the Local Government Board, and until the crematorium has been certified by the burial authority to the Secretary of State to be complete, built in accordance with such plans, and properly equipped for the purpose of the disposal of human remains by burning.

5. No crematorium shall be constructed nearer to any dwelling-house than 200 yards, except with the consent, in writing, of the owner, lessee, and occupier of such house, nor within 50 yards of any public highway, nor in the consecrated part of the burial ground of any burial authority.

6. A burial authority may accept a donation of land for the purpose of a crematorium, and a donation of money or other property for enabling them to acquire, construct, or maintain a crematorium.

7. The Secretary of State shall make regulations as to the maintenance and inspection of crematoria and prescribing in what cases and under what conditions the burning of any human remains may take place, and directing the disposition or interment of the ashes, and prescribing the forms of the notices, certificates, and declarations to be given or made before any such burning is permitted to take place, such declarations to be made under and by virtue of the Statutory Declarations Act, 1835, and also regulations as to the registration of such burnings as have taken place. A copy of such regulations shall be laid before both Houses of Parliament, if Parliament be then sitting, or if not then within three weeks after the beginning of the next ensuing session of Parliament, and after such regulations have lain for 40 days before Parliament, then, unless within such 40 days an address has been presented by one or other of the said Houses praying His Majesty to withhold his assent from such regulations or any part thereof, such regulations shall have the same effect as if they were enacted in this Act. All statutory provisions relating to the destruction and falsification of registers of burials and the admissibility of extracts therefrom as evidence in courts and otherwise shall apply to the register of burnings directed by such regulations to be kept, and the Stamp Act, 1891, shall apply to a register under this Act as if it were a register of burials.

8. (1) Every person who shall contravene any such regulation as aforesaid, or shall knowingly carry out or procure or take part in the burning of any human remains except in accordance with such regulations and the provisions of this Act, shall (in addition to any liability or penalty which he may otherwise incur) be liable on summary conviction to a penalty not exceeding £50. Provided that any person aggrieved by any conviction may appeal therefrom to quarter sessions. (2) Every person who shall wilfully make any false declaration or representation, or sign or utter any false certificate, with a view to procuring the burning of any human remains, shall (in addition to any penalty or liability which he may otherwise incur) be liable to imprisonment with or without hard labour not exceeding two years. (3) Every person who with intent to conceal the commission or impede the prosecution of any offence, procures or attempts to procure the cremation of any body, or with such intent makes any declaration or gives any certificate under this Act, shall be liable to conviction on indictment to penal servitude for a term not exceeding five years.

9. The burial authority may demand payment of any such charges or fees for the burning of human remains in any crematorium provided by them as may be authorised by any table approved by the Local Government Board, and such charges or fees, and any other expenses properly incurred in or in connexion with the cremation of a deceased person, shall be deemed to be part of the funeral expenses of the deceased.

10. Nothing in this Act shall interfere with the jurisdiction of any coroner under the Coroners Act, 1887, or any Act amending the same, and nothing in this Act shall authorise the burial authority or any person to create or permit a nuisance.

11. The incumbent of any ecclesiastical parish shall not, with respect to his parishioners or persons dying in his parish, be under any obligation to perform a funeral service before, at, or after the cremation of their remains, within the ground of a burial authority, but, upon his refusal so to do, any clerk in Holy Orders of the Established Church not being prohibited under ecclesiastical censure, may, with the permission of the bishop and at the request of the executor of the deceased person, or of the burial authority, or other person having charge of the cremation or interment of the cremated remains, perform such service within such ground.

12. In any table of fees respecting burials to be made or approved by the Secretary of State a fee may be fixed in respect of a burial service before, at, or after cremation, and if no fee is fixed, the fee, if any, fixed in respect of a burial service shall apply.

13. Sections 52 and 57 of the Cemeteries Clauses Act, 1847, and any similar provisions in any local and personal Act authorising the making of a cemetery, shall apply to the disposition or interment of the ashes of a cremated body as if it were the burial of a body.

14. As from the date at which regulations under this Act come into force, any provisions of any local and personal Act for the like purpose as this Act, and any by-laws or regulations made thereunder, shall, so far as they relate to that purpose, cease to be in operation.

15. This Act shall come into operation on the first day of April one thousand nine hundred and three.

16. This Act shall not apply to Ireland.

[2] A ward diet found excellent clinically and experimentally was three meals daily made up of meat, seven ounces; bacon, two ounces; egg and milk, three pints; butter, three ounces; bread, seven ounces; sugar, one ounce; pudding, five ounces; and vegetables, six ounces.

PROSECUTION UNDER THE PUBLIC HEALTH ACT.—At the Moot Hall police-court, Newcastle, on August 30th, a young man, resident at Benwell, was charged with being in a public street whilst desquamating after scarlet fever. The defendant said that he had to work in order to maintain himself and there was no hospital for him to go to. One of the officials said that the Benwell and Fenham council had made no provision for cases of that kind. Sir Riley Lord said that the bench would fine defendant 2*s.* 6*d.* and 1*s.* 6*d.* costs. He added that they hoped that the council would make some adequate provision for cases of that sort. The bench thought that the council was quite as much to blame as was the defendant.

THE ANNUAL PATHOLOGICAL MUSEUM OF THE BRITISH MEDICAL ASSOCIATION.

WHEN the Annual Museum of the British Medical Association was originated, the idea of the founders was that it would form a valuable means of education and interest to the whole profession, and particularly to those who were engaged in busy country and provincial practices, if all the different museums of the metropolis and the chief towns were to lend the additions which had been made to each museum during the preceding 12 months. If this idea were still carried out it would, indeed, form one of the most interesting and instructive features of these annual gatherings. Unfortunately, the trade element crept in, for at first the mercantile exhibits were included in one Annual Museum. These soon became a most valuable source of income, and at last the trade exhibits have become totally separated and the income derived from them, instead of being devoted to collecting and providing transit for interesting specimens and complex apparatus for exhibition in connexion with its quondam partner it is presumably expended in other directions. Last year, at Cheltenham, the Pathological Museum was crowded into an extremely small room adjacent to the spacious winter garden in which the mercantile exhibits were spread out. Both were, it is true, beneath the same roof and the visitors to both were numerous. This year, at Manchester, they were completely separated. Interesting as were the various exhibits in this year's museum it was only a few of the more enthusiastic workers in the profession who had energy sufficient to climb to the top of the Owens College and who succeeded in finding their way amid the labyrinth of turnings. Those who did arrive at their destination were heard to express a hope that now at any rate they would see some of the latest and most scientific apparatus for pathological research, and that since Manchester was one of the greatest industrial centres of the world they would certainly see all that pathology could teach concerning diseases relating to the various industries.

Arsenic has been a great deal in evidence lately and to it quite a number of diseases are now being attributed, such as peripheral neuritis, various skin lesions, and cancer; even beri-beri was mentioned at one of the discussions in the sections. One of the exhibits in the museum consisted of an unpretentious pint bottle labeled "Manchester Snow Water," about which many interesting things might be said. The snow was collected after a dense fog and the soot contained in the bottle was entirely derived from the snow water contained in the bottle. This water contained arsenic derived from the soot, in the proportion of one grain of arsenious acid in 108 gallons of water. During the month of December, 1900, Professor S. Delépine, finding that coal and coke contained unexpectedly large amounts of arsenic, tested for arsenic the soot contained in the flues of chimneys, the dust in Manchester houses, and the dust deposited on the leaves of trees and shrubs, and found an appreciable amount of arsenic in each case. No arsenic could be found on leaves collected in Switzerland or in the Lake District in England. He was therefore led to infer that large amounts of arsenic were constantly deposited from the air in Manchester, and it was to test this point that the snow water was collected. The inhabitants of large towns where much coal is burnt must therefore inhale a very appreciable amount of arsenic, more especially during foggy weather. The snow water evidently contained also a very large amount of organic impurities which might be seen as a thick sediment at the bottom of the bottle. This gives some idea of the enormous amount of organic impurities which the inhabitants of big towns like Manchester and London must inhale and constitutes a grave cause for anxiety and for efficient action in the way of prevention. The fact that the snow water contained arsenic, which could also be found in the soot of chimneys, is a very interesting fact to those who, like Mr. Jonathan Hutchinson, hold that arsenic can produce cancer. Chimney-sweep's cancer has long been a puzzle to pathologists for it could not altogether be attributed to mechanical irritation. Sir James Paget long ago described in his own lucid way the changes which occur in the skin of chimney-sweeps and there seems very little doubt that the features which he described correspond with those we now know as keratosis due to the internal administration of arsenic.

The effects upon the skin produced by the internal administration of arsenic formed one of the most interesting features of the exhibition. In a series of sketches exhibited by Mr. Hutchinson (London), among the drawings selected from those added to the Polyclinic Museum during the past year, No. 217 showed the hands and elbows of a man in whom arsenical poisoning (discoloured skin, pitted palms, and psoriasis-like crusts on the elbows and knuckles) was induced by a short course of arsenic in full doses. Another of these exhibits represented the hands of a medical man living in New York who had been taking large doses of arsenic for a prolonged period of time and in whom arsenical keratosis appeared on the palms of the hands, and these subsequently became cancerous as shown in the sketch. Another plate showed the hands of a patient who had undergone amputation of a finger for epithelial cancer and in whom after the administration of arsenic numerous small warty growths (? malignant) had appeared, in addition to the keratosis, on the hands and various parts of the body.

An interesting portrait in the same series exhibited a girl of about 20 years of age who was the subject of that curious condition Hemiatrophy of the Face, resulting from "herpetiform morphœa." An important feature was the very advanced condition of atrophy of the right side of the tongue. This was probably the first instance in which unilateral atrophy of the tongue had been demonstrated in connexion with morphœa. Beside the preceding there was exhibited for comparison a case of unilateral atrophy of the tongue which had existed for some years after destruction of the lingual nerve by a sloughing abscess of the neck. The atrophy in this patient was much less than in the case of morphœa. Do not a study and comparison of these cases lead to the conclusion that the initial lesion in the morphœa of Erasmus Wilson in reality involves the nerve trunk supplying the part affected (the fifth or lingual, as the case may be) in early life? Cases of identically the same hemiatrophy facialis have been reported where injury to the head attended by evidence of damage to the cranial nerves has been followed by facial hemiatrophy.[1]

Among the photographs deserving special note was a series exhibited by Dr. D. Chalmers Watson (Edinburgh), illustrating various diseases of human beings produced experimentally in the lower animals. One series illustrating nervous diseases in animals was communicated to the pathological section of the Association.[2] Another series illustrated experimental gout produced in poultry fed on a diet strictly limited to red meat and water, joint lesions being produced; and in the opinion of the exhibitor these researches tended to emphasise the "individual factor" of disease.

The anatomy and pathology of the nasal cavities received a notable addition in the well-described series of 10 specimens and 34 plates exhibited by Mr. F. H. Westmacott (Manchester). But as an illustration of the patient analytical industry which is so marked a quality of German observers, it would be hard to find a better instance than the coloured pastel sketches which occupied the entire side of one large screen. A few of these depicted the development of the auricle in various mammals, but the large majority of these pictures, and many of the 556 smaller sketches in a book also exhibited, illustrated the appearance of the tympanic membrane in various stages, extending over a course of years, of a rare condition which has been described as "blue ear-drum" or "tympanum ceruleum."[3] These were not described in the catalogue, but in the course of conversation with the exhibitor, Professor Rohrer (Zürich), we learned that they were all from one case in which the appearance presented was due to the formation of dilated and tortuous venules (varices) on the ear-drum, derived from the jugular vein owing to a deficiency in the bony wall of the jugular fossa of congenital and possibly rachitic origin. The patient could hear perfectly well and presented no symptoms, and the first question which spontaneously occurred to the mind was, What was the practical use of so much labour? But is not the practical utility of any subject generally found out late, when generations of patient thinkers and workers have spent their lives on it, inspired only by the love of knowledge? Many of the greatest discoveries in astronomy, biology, and pathology have been made by men who had not

[1] Savill: Clinical Journal, 1897.
[2] THE LANCET, August 2nd, 1902, p. 328.
[3] Ueber die blaue Farbe des Trommelfelles—Tympanum coeruleum—und über das Auftreten von Varicen am Trommelfell, von Dr. R. Rohrer. Zeitschrift für Ohrenheilkunde, Band xxxix., Heft 1.

the remotest idea of their application at the time. Sooner or later, in the most unlikely studies, the practical application comes, and comes as an unearned increment to knowledge pursued for its own sake.

Curiously enough another notable instance of this principle was to be found in the exhaustive series of specimens also relating to and illustrating the anatomy and pathology of the ear exhibited by Mr. Arthur H. Cheatle (London). Dry bones for the most part, they exhibited the arrangement of the mastoid cells in different individuals and various other anatomical and pathological details of which the casual observer would find it hard to discover the bearing, since the catalogue gave no enlightenment, but to which the remarks we have just made again apply. They formed a monument of patient industry. Dr. R. C. Elsworth (Swansea), Mr. Hugh E. Jones (Liverpool), and Mr. H. Secker Walker (Leeds) also exhibited specimens in the domain of otology.

If anyone were asked what was the prevailing feature of this exhibition the answer almost unhesitatingly would have been diseases of the osseous system. Mr. Noble Smith (London) exhibited an interesting series of 36 radiographs illustrating the pathological conditions appertaining to Congenital Dislocation of the Hip-joints. The points brought forward were that in a large number of cases the joints were malformed or rudimentary, the acetabula were deficient or practically absent, and the heads of the femora were more or less indifferently developed. These defects varied considerably in degree and there were some instances in which the joints themselves, as shown by radiography, were quite normal with the exception of the displacement. In a large number of cases the child had been born with a breech presentation and it was suggested that traumatic dislocation had in such instances occurred in consequence. Another point which these plates illustrated was the similarity in symptoms between congenital displacement and coxa vara, and it was considered by the exhibitor that an exact diagnosis could only be determined by a radiograph. Dr. J. W. Ballantyne (Edinburgh), Dr. W. Stoeltzner (Berlin), and Mr. C. E. S. Flemming (Bradford-on-Avon) exhibited an exhaustive series of Fœtal and Infantile Bone Diseases, including rickets, pseudo-rachitic osteoporosis, chondrodystrophia fœtalis hypoplastica, phocomely, chondrodystrophia fœtalis hyperplastica, and achondroplasia. The exhibit of Mr. G. A. Wright (Manchester) bore also on bone diseases, and his series of 26 wet specimens of the various forms of Tuberculous Disease of the Hip-joint repaid careful study. A remarkably fine radiograph from a case under the care of Mr. Edmund Owen (London) showed ossification of the tendo Achillis.

An interesting series of 50 Vermiform Appendices removed from persons suffering from recurrent appendicitis, illustrating the various changes met with in the appendix in this affection, were exhibited by Mr. F. A. Southam (Manchester). It would have given additional interest to this series if the nature of the originating concretions had been more particularly specified. In a few instances only this was vaguely described as a "hard fæcal concretion," but at the present time observers ask how often this contains the bristle of a toothbrush, a cherry-stone, or other substances which might with a little care have been prevented from entering the alimentary canal at all. The nature and origin of these "concretions" need elucidation. The same exhibitor presented a series of Vesical Calculi from 100 patients (55 from male children under 10 years, 33 from males over 10 years, and six from females). One of these calculi contained a glass rod which the patient stated he had swallowed accidentally eight years previously; and another from a female who had been operated on three years before for vesico-vaginal fistula contained a wire suture embedded in its periphery.

Thus it will be seen that the museum had a distinctly surgical tone. More than passing interest, however, attached to the 30 drawings of Dr. Alfred W. Campbell (Rainhill Asylum) and Dr. A. C. Wilson (Doncaster), illustrating the arrangement of the Medullated Fibres in the Cerebral Cortex; and they go far to justify the modern innovation of appointing pathologists to our large county asylums. The plan was instituted by the London County Council at the suggestion of Sir W. J. Collins, and the good work accomplished both in London and the provinces must be a source of satisfaction to all concerned.

Turning next to rarer specimens, that of Mr. Walter Whitehead (Manchester) naturally occupied a prominent place. It consisted of the entire right upper extremity which was the seat of lymphangiectatic elephantiasis. The arm, which along with the scapula weighed 70½ pounds, was amputated from a man, aged 32 years. The enlargement of the arm commenced when the patient was about eight years of age; it progressed slowly for eight years then more rapidly, and especially during the last five years. The hypertrophied tissues were confined almost entirely to the extensor surface and they did not pass beyond the wrist, the hand being entirely free. Dr. F. Craven Moore (Manchester) exhibited one of three specimens of Unilateral Absence of the Kidney, Ureter, and Testis which he had met with accidentally in the post-mortem room. Dr. J. Dreschfeld (Manchester) exhibited an interesting specimen from a case of Hæmorrhagic Meningo-encephalitis secondary to influenza. The case, if we remember rightly, attracted considerable attention at the time on account of the symptoms, which consisted mainly of continuous sleep and vomiting. A transverse section through the two hemispheres mounted by the gelatin-formalin method between glass plates showed irregular capillary hæmorrhages in the cortical and sub-cortical layers and inflammatory exudation in the overlying pia arachnoid. Another remarkable exhibit was that of an enormous Cavernous Angioma of the Liver by Dr. A. Mantle (Halifax). It had been manifest during life for two years as a gradually enlarging abdominal tumour, distinctly fluctuant and dull on percussion. After death, which resulted from internal hæmorrhage (estimated at about eight pints) following an exploratory operation, the tumour was found to extend from the right lobe of the liver into the right iliac fossa, its vertical extent being 10½ inches, its width eight inches. The liver and tumour weighed six pounds 13 ounces.

If we except the exhibits of Dr. A. S. F. Grünbaum (Liverpool) of experimental typhoid fever in a chimpanzee and the differentiation of the bacillus typhosus and the bacillus coli communis, and of Dr. Delépine of experimental tuberculosis in guinea-pigs, bacteriological specimens were conspicuous by their absence. It has always been a difficult matter to distinguish the highly virulent typhoid bacillus from the bacillus coli, which until lately has been regarded as non-pathogenic, and the Petri dish exhibited by the first-named observer showed very clearly their differentiation by the very simple means of staining with neutral red; this colour had been taken up by colonies of the latter, whereas colonies of the former remained colourless. Pathological instruments also were conspicuous by their absence, if we except a few microscopes and incubating ovens placed in a room still more isolated and difficult of access downstairs. In a well-equipped school like the Manchester Medical School it ought not to have been difficult to have exhibited, for instance, some of the most recent apparatus for testing and recording variations in blood-pressure. What a valuable educational addition from the practitioner's standpoint this would have constituted, and the objection to moving complicated mechanical contrivances over long train journeys could not have been raised in this instance.

The latest methods of preparing museum specimens for educational and other purposes should always form a feature of these annual exhibitions and Professor D. J. Hamilton (Aberdeen) exhibited some excellent coloured casts of the lesions in typhoid fever, of the spleen in malaria, and of the kidney in tuberculosis. Dr. T. Shennan (Edinburgh) exhibited three life-like casts in Cathcart's material (gelatin and formalin), showing a hand before and after the removal of a nævus. The excellent results obtained in certain cases by this method are beyond praise.

The series of semi-transparent sections of diseased hearts—which a prefatory note in the museum catalogue mentions as worthy of special attention—were interesting in some respects, but it is a questionable improvement on the older methods of mounting the organ. Similar "transparencies" of morbid conditions of the lungs were also exhibited, but (as an instance of the futility of the method) it would have been somewhat difficult if the labels had been removed to have detected the difference between two specimens which were side by side—No. 138, showing hyperæmia and hæmorrhage of the lung from a case of chronic alcoholism, and No. 139, showing anthracosis of the lung from an old Scotch miner who had worked 40 years in a badly ventilated coal-mine. This and the specimens bearing on arsenic previously alluded to were the only instances of exhibits bearing on trade diseases.

The exhibits were for the most part well arranged and catalogued, and credit was due in this respect to the energy and skill of Dr. Craven Moore, secretary of the museum committee, whose courtesy led us to suppose that had informal demonstrations by him at stated intervals been suggested as part of the programme they would have done much to increase the interest of those few who did find their way into the museum. But we confess to a feeling of disappointment—first, that the original idea of the founders of the museum has been allowed to lapse; secondly, that such a valuable means of studying nature's facts and modern methods of research and of education to the whole profession should have been relegated to an out-of-the-way room on the top floor of a large and spacious building; and thirdly, that Manchester, the very centre of trade diseases, did not place before the medical world more of her wealth of pathological material in this department.

THE HOVIS BREAD FLOUR CO., LIMITED, AND QUOTATION FROM THE LANCET.

THE Hovis Bread Flour Co., Limited, of Macclesfield, have issued a small pamphlet entitled, "Hovis Food," or, alternatively, "The New Foster Mother." A copy of this pamphlet has been sent to us by a medical man who draws our attention to the following statement which occurs therein: "*The Lancet*, speaking of the prepared Hovis Food, states: 'It affords a diet lacking no physiological requirement,' and by the use of these foods 'a milk is obtained presenting the same composition as human milk.'" We thereupon addressed a letter to the Hovis Bread Flour Co., Limited, of Macclesfield, objecting to the misuse made of our words—a misuse which will be sufficiently clear to all who read in parallel columns our real statements, noting the passages put in italics, and those attributed to us.

THE LANCET, March 8th, 1902.	*The Circular of the Hovis Bread Flour Co., Limited.*
"The advantages of these foods are that they are almost entirely soluble and that *by the addition of them to diluted cow's milk* a milk is obtained presenting the same composition as human milk."	"By the use of these Foods a milk is obtained presenting the same composition as human milk."
"It is very correctly claimed that *these foods are not complete in themselves, but that their addition to milk* affords a diet lacking no physiological requirement."	"*The Lancet*, speaking of the prepared Hovis Food, states: 'It affords a diet lacking no physiological requirement.'"

To our surprise we received a reply from the Hovis Bread Flour Co., Limited, asking to have the misinterpretation of our words to which we objected pointed out. We accordingly complied with the request and have now received a further reply from the company which we subjoin.

DEAR SIR,—In further reply to yours of the 21st ult., I have this day placed the correspondence in respect thereto before my Directors, who desire me to write confirming the explanatory letter sent to you from our Macclesfield Office on the 22nd ult., that so far as can be judged it is simply in respect to the omission from our quotation of the fact that milk should be added to the Foods that you take objection to, but as you know the "Hovis" Infants and Invalids Food are only prepared to be used with milk as explained in our booklets and on the directions sent out with each bottle, we therefore considered it unnecessary when quoting from your article to emphasize a fact which must be known to everybody under whose notice the Foods come.

If, of course, after this explanation you still consider that by continuing the quotations as we have done we are misinterpreting your meaning we will make the alterations you ask for but at the same time we think it next to impossible for anyone to be misled by the quotations as printed and we trust the matter is now settled to your satisfaction.

Yours faithfully,
A. E. CRESSALL, Secretary.

Westminster, S.W., Sept. 1st, 1902.

Our readers will see that the company do not appear to realise the gravity of the offence or the impropriety of the misquotation and our solicitors have now instructions to require the company to cease further dissemination of the misleading quotations.

BEER-DRINKING IN GERMANY.—According to the last issue of the Statistical Year-book of the City of Berlin the annual consumption of beer in Berlin increased from 199 litres (350 pints) per head of the population in 1895 to 232 litres (408 pints) in 1900. For the whole of Germany the figures were 115 litres (202 pints) in 1895 and 124 litres (218 pints) in 1900. The average annual consumption of beer in Bavaria is higher even than in Berlin.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply during the month of June has recently been published. It will repay study in the light of the facts referred to in the leading article which appeared in THE LANCET of August 9th, p. 367. The Water Examiner states that the condition of the Thames water was good from the 1st to the 13th of the month. From the 14th to the 19th, both those days included, it was of "bad" quality; on the 20th it was of indifferent quality. On the 21st, and from that date until the end of the month, it was good. At West Molesey the total amount of rainfall which occurred during the month was 3·76 inches. The height of the river varied from a point four inches above to one five inches below the average summer level. The average daily amount of water delivered from the Thames was 125,585,077 gallons; from the Lee, 43,155,227 gallons; from springs and wells, 50,008,247 gallons; and from the Hampstead and Highgate ponds, 134,787 gallons. The total average amount delivered daily was 218,883,338 for a population estimated at 4,373,015, which represents a daily consumption per head of 34·35 gallons. The amount of water supplied per head was in the case of each company less than it was during the corresponding month of last year. The Kent Company uniformly supplied clear water of high organic purity and of excellent quality. All the samples examined of the water supplied by the New River Company were found to be clear, but in the case of all the other companies' waters "on some occasions small amounts of superadded matters, consisting chiefly of rust-coloured particles, were observed." The proportion of brown tint in samples observed in a two-foot tube ranged from two to 27 degrees of the standard in use, and this, it may be remarked, is a very wide range. "The water of the Lambeth Company exhibited the deepest average tint of brown." Samples of the water of all the companies taken on June 9th were examined by Dr. T. E. Thorpe, F.R.S., the analyst to the Local Government Board. At this date the condition of the river water was good. Later in the month there was a heavy rainfall, the height of the river rose, the water became turbid, and the supplies given by some of the companies gave "indications" (the nature of which are not stated) that the quality of the water was not satisfactory and Dr. Thorpe made some further analyses. It may be of use to quote the exact words of his report (p. 13). "Owing," he says, "to indications that the exceptional rainfall and consequent flooded condition of the Thames was adversely affecting some of the supplies extra samples of the Grand Junction and Lambeth companies' waters were taken on June 21st; both samples were much inferior to those drawn from the respective companies' mains on June 9th and the Lambeth Company's water was of indifferent quality owing to the excessive quantity of vegetable organic matter which it contained." The most important results of Dr. Thorpe's examination are given in the appended table which shows the results of the analysis expressed in parts per 100,000.

Company.	Date on which specimen was taken.	Organic carbon.	Organic nitrogen.	Nitrogen as nitrates and nitrites.	Total combined nitrogen.
Chelsea	June 9th.	0·129	0·017	0·156	0·173
West Middlesex	,, ,,	0·138	0·014	0·137	0·151
Southwark ...	,, ,,	0·151	0·017	0·133	0·150
Grand Junction	,, ,,	0·129	0·015	0·157	0·172
,, ,,	,, 21st.	0·300	0·025	0·185	0·210
Lambeth	,, 9th.	0·147	0·017	0·170	0·187
,, ...	,, 21st.	0·400	0·030	0·189	0·219
New River ...	,, 9th.	0·060	0·006	0·159	0·165
East London ...	,, ,,	0·110	0·013	0·093	0·106
,, ,, ...	,, 24th.	0·424	0·036	0·272	0·309
Kent	,, 9th.	0·032	0·006	0·362	0·368

The relative amount of organic impurity contained in the water examined may perhaps be most readily stated by expressing it numerically in figures. It is correctly represented as follows: Kent, 6; New River, 11; East London (June 9th), 21, (June 24th) 78; Grand Junction (June 9th), 24,

(June 21st) 55; Chelsea, 25; West Middlesex, 26; Southwark, 28; Lambeth (June 9th), 28, (June 21st) 73. The water supplied by the Kent Company was colourless, that by the New River Company nearly colourless; the supplies of the Chelsea, West Middlesex, Southwark, Grand Junction, Lambeth, and East London Companies on June 9th were of "very pale yellow"; the supplies of the Lambeth and East London Companies collected respectively on June 21st and 24th were "pale brown in colour." It is very evident from Dr. Thorpe's analysis that the impurity of the Thames river water had its natural effect on the supplies given by the companies which have made insufficient arrangements for the storage of water. This matter has been frequently insisted upon in THE LANCET and it has been constantly urged that more analyses should be made of the water supplied by the companies, and especially at times during which the river is in flood. It is satisfactory to note not only that an increased number of examinations have been made, but also that Dr. Thorpe has clearly realised, and in his official capacity (as analyst to the Local Government Board) points out, that the badness of the quality of the water supplied is due to the fact that the companies have made insufficient provision for the treatment of impure river water. In the course of his report Dr. Thorpe says: "The Lambeth Company's water was most affected. ..... From a consideration of the records of the analytical examinations of the metropolitan waters it appears that it is 23 years since such a high proportion of organic impurity has been observed in the month of June. The Grand Junction and Southwark Companies were also considerably affected for the worse, but the Chelsea and West Middlesex Companies by their comparatively large storage succeeded in avoiding the distribution of water of very high colour and excessive organic contamination." In regard to the water supplied by the East London Company Dr. Thorpe states that on June 23rd it was of inferior quality and on the 24th it "contained a larger amount of organic matter than was found in any of the Thames waters." Some of the East London Company's water, we may again point out, is derived from the Thames. Dr. Thorpe continues: "As this company possesses nearly 30 days' storage it ought to have been possible to avoid the distribution of such unsatisfactory water on the dates mentioned." The East London Company has no provision whatever for the storage of its Thames supply, which in this connexion is a matter not without interest. The Water Examiner states that "all the samples of water collected at the works of the companies were efficiently filtered." It does not appear that any such samples were submitted to Dr. Thorpe and it would require the ingenuity of an expert to reconcile this statement with the analyst's report, concerning the accuracy of which we have no doubt whatever.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8773 births and 4116 deaths were registered during the week ending August 23rd. The annual rate of mortality in these towns, which had been 13·6 and 15·5 per 1000 in the two preceding weeks, declined again in that week to 14·4 per 1000. In London the death-rate was 14·5 per 1000, while it averaged 14·4 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 3·5 in Hornsey, 6·4 in Willesden, 6·9 in King's Norton, 7·4 in Wallasey, 7·6 in Wolverhampton, 9·1 in Leyton, and 9·3 in Walthamstow and in Rochdale; the highest rates were 18·7 in Bristol and in Huddersfield, 18·8 in Bury, 19·2 in Merthyr Tydfil, 20·1 in Sunderland, and 20·2 in Stockton-on-Tees and in Newcastle. The 4116 deaths in these towns last week included 638 which were referred to the principal infectious diseases, against 579, 584, and 642 in the three preceding weeks; of these 638 deaths 263 resulted from diarrhœa, 125 from measles, 94 from whooping-cough, 54 from scarlet fever, 48 from diphtheria, 47 from "fever" (principally enteric), and seven from small-pox. No death from any of these diseases was registered last week in Hornsey, Great Yarmouth, Blackburn, or York; while they caused the lowest death-rates in Walthamstow, Walsall, Rochdale, and Sheffield, and the highest in Portsmouth, Bristol, Grimsby, Liverpool, Bootle, Stockton-on-Tees, and Rhondda. The greatest proportional mortality from measles occurred in Portsmouth, Devonport, Bristol, Smethwick, Stockton-on-Tees, and Cardiff; from scarlet fever in Stockport and Burnley; from diphtheria in Tottenham; from whooping-cough in Portsmouth, Norwich, Grimsby, Wigan, and Tynemouth; from "fever" in Grimsby; and from diarrhœa in King's Norton, Liverpool, Bootle, and Rhondda. Small-pox caused three deaths in London, two in Liverpool, and one each in Leicester, and in Swansea, but not one in any other of the 76 towns. The number of small-pox patients in the Metropolitan Asylums hospitals, which had decreased from 1515 to 170 at the end of the 17 preceding weeks, had further declined to 128 on August 23rd; 18 new cases were admitted during the week, against 44, 21, and 24 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday, August 23rd, was 2623, against 2562, 2591, and 2595 on the three preceding Saturdays; 297 new cases were admitted during the week, against 382, 295, and 303 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 135, 131, and 159 in the three preceding weeks, declined again to 136 and were 15 above the corrected average. The causes of 58, or 1·4 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Salford, Bradford, Hull, and in 41 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Aston Manor, Liverpool, Rochdale, and Middlesbrough.

In 76 of the largest English towns 8824 births and 4319 deaths were registered during the week ending August 30th. The annual rate of mortality in these towns, which had been 15·5 and 14·4 per 1000 in the two preceding weeks, rose again last week to 15·2 per 1000. In London the death-rate was 15·8 per 1000, while it averaged 14·9 in the 75 other large towns. The lowest death-rates in these towns were 3·6 in Bury, 5·5 in Smethwick, 7·0 in East Ham, 7·7 in Willesden, and in King's Norton, 8·7 in Devonport and in Preston, and 8·3 in West Hartlepool; the highest rates were 20·0 in Tynemouth, 20·1 in Portsmouth, 20·4 in Sunderland, 21·2 in Bristol, 21·3 in Plymouth, 21·8 in Bootle, 23·7 in Wigan, and 24·2 in Hanley. The 4319 deaths in these towns last week included 743 which resulted from the principal infectious diseases, against 584, 642, and 638 in the three preceding weeks; of these 743 deaths 371 were referred to diarrhœa, 121 to measles, 98 to whooping-cough, 56 to diphtheria, 51 to "fever" (principally enteric), 44 to scarlet fever, and two to small-pox. No death from any of these diseases was registered last week in Hornsey, Hastings, Bournemouth, Handsworth, King's Norton, Wallasey, Warrington, Bury, Blackburn, Rotherham, Newport (Mon.), or Swansea; among the other towns the highest death-rates from these infectious diseases were recorded in West Ham, Portsmouth, Plymouth, Bristol, Hanley, West Bromwich, Grimsby, and Wigan. The highest proportional mortality from measles was registered in Portsmouth, Bristol, Hanley, West Bromwich, Aston Manor, Barrow-in-Furness, Stockton-on-Tees, Gateshead, and Cardiff; from scarlet fever in West Bromwich, Wigan, and Burnley; from diphtheria in Middlesbrough; from whooping-cough in Burton-on-Trent and in Wigan; from "fever" in Hanley, Grimsby, and Birkenhead; and from diarrhœa in Croydon, West Ham, Portsmouth, Reading, Plymouth, Liverpool, Bootle, Wigan, and Burnley. Two fatal cases of small-pox belonging to London were registered last week, but not one belonging to any of the 75 other large towns. The Metropolitan Asylums hospitals contained 109 small-pox patients at the end of last week, against numbers decreasing from 1515 to 128 at the end of the 18 preceding weeks; 11 new cases were admitted during the week, against 21, 24, and 18 in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2591, 2595, and 2623 on the three preceding Saturdays, had further risen to 2651 on Saturday, August 30th; 295 new cases were admitted during the week, against 295, 303, and 296 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 131, 159, and 136 in the three preceding weeks, rose again last week to 139, and were nine above the corrected average number. The causes of 52, or 1·2 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Bradford, Newcastle, and in 44 other

smaller towns. The highest proportions of uncertified deaths were registered in Liverpool, Warrington, Blackburn, Halifax, Leeds, Sheffield and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 13·9 and 15·7 per 1000 in the two preceding weeks, declined again to 14·4 per 1000 during the week ending August 23rd, and corresponded with the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 4·6 in Leith and 10·9 in Perth to 15·5 in Aberdeen and 17·3 in Paisley. The 464 deaths in these towns included 22 which were referred to diarrhœa, 14 to whooping-cough, seven to scarlet fever, five to measles, two to diphtheria, and two to "fever," but not one to small-pox. In all, 52 deaths resulted from these principal infectious diseases, against 46 and 64 in the two preceding weeks. These 52 deaths were equal to an annual rate of 1·6 per 1000, being 0·6 per 1000 below the mean rate from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 16 and 23 in the two preceding weeks, declined again to 22, of which 14 occurred in Glasgow, six in Edinburgh, and two in Aberdeen. The deaths from whooping-cough, which had been 7, 16, and 25 in the three preceding weeks, decreased again to 14, and included nine in Glasgow and four in Edinburgh. The fatal cases of scarlet fever, which had declined from six to one in the four preceding weeks, rose again to seven, of which three were registered in Glasgow and two in Paisley. The deaths from measles, which had been five and nine in the two preceding weeks, declined again to five, and included four in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 63 and 73 in the two preceding weeks, declined again to 68, but exceeded by 17 the number recorded in the corresponding period of last year. The causes of 17, or nearly 4 per cent., of the deaths registered in these eight towns were not certified.

The annual rate of mortality in the eight Scotch towns, which had been 15·7 and 14·4 per 1000 in the two preceding weeks, further declined to 14·0 per 1000 during the week ending August 30th, and was 1·2 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in these eight Scotch towns ranged from 7·9 in Leith and 11·5 in Paisley to 15·9 in Greenock and 26·6 in Perth. The 451 deaths in these towns included 17 which were referred to whooping-cough, 14 to diarrhœa, five to scarlet fever, four to measles, four to "fever," and one to diphtheria. In all 45 deaths resulted from these principal infectious diseases last week, against 64 and 52 in the two preceding weeks. These 45 deaths were equal to an annual rate of 1·4 per 1000, being 1·2 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping cough, which had been 25 and 14 per 1000 in the two preceding weeks, rose again last week to 17, of which 10 occurred in Glasgow and three in Edinburgh. The deaths from diarrhœa, which had been 23 and 22 in the two preceding weeks, further declined to 14 last week, and included nine in Glasgow and two in Aberdeen. The fatal cases of scarlet fever, which had been one and seven in the two preceding weeks, decreased again last week to five, of which two were registered in Glasgow and two in Edinburgh. The mortality from measles showed a slight decline from that recorded in the preceding week, while that from "fever" was slightly in excess. The deaths referred to diseases of the respiratory organs in these towns, which had been 73 and 68 in the two preceding weeks, further declined last week to 54, and were slightly below the number in the corresponding period of last year. The causes of 11, or more than 2 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·2, 20·2, and 19·5 per 1000 in the three preceding weeks, was again 19·5 per 1000 during the week ending August 23rd. During the past four weeks the death-rate has averaged 20·1 per 1000, the rates during the same period being 14·3 in London and 15·4 in Edinburgh. The 142 deaths of persons belonging to Dublin registered during the week under notice corresponded with the number in the preceding week and included 23 which were referred to the principal infectious diseases, against 29, 30, and 24 in the three preceding weeks; of these 16 resulted from measles, three from diarrhœa, two from whooping-cough, and two from "fever," but not one from either small-pox, scarlet fever, or diphtheria. These 23 deaths were equal to an annual rate of 3·2 per 1000, the annual death-rates from the same diseases being 2·5 in London and 1·8 in Edinburgh. The fatal cases of measles, which had been 20 in each of the two preceding weeks, declined again to 16; the deaths from "fever" corresponded with the number in the preceding week; while those from diarrhœa showed an increase. The 142 deaths in Dublin included 29 of children under one year of age and 20 of persons aged upwards of 60 years; the deaths of infants slightly exceeded the number in the preceding week, while those of elderly persons showed a marked decline. Four inquest cases and four deaths from violence were registered; and 61, or nearly one-half, of the deaths occurred in public institutions. The causes of 13, or nearly 9 per cent., of the deaths registered in Dublin were not certified.

The death-rate in Dublin, which had been 19·5 per 1000 in each of the two preceding weeks, increased to 20·6 per 1000 during the week ending August 30th. During the past four weeks the death-rate has averaged 20·0 per 1000, the rates during the same period being 14·9 in London and 14·7 in Edinburgh. The 150 deaths of persons belonging to Dublin registered during the week under notice were eight in excess of the number in the preceding week and included 24 which were referred to the principal infectious diseases, against 24 and 23 in the two preceding weeks; of these, 11 resulted from measles, seven from diarrhœa, two from scarlet fever, two from diphtheria, and two from "fever," but not one from either small-pox or whooping-cough. These 24 deaths were equal to an annual rate of 3·3 per 1000, the death-rates last week from the same diseases being 3·0 in London and 1·1 in Edinburgh. The fatal cases of measles, which had been 20 and 16 in the two preceding weeks, further declined last week to 11; while the deaths from diarrhœa, which had been one and three in the two preceding weeks, further increased to seven last week. The 150 deaths registered in Dublin last week included 22 of children under one year of age and 28 of persons aged upwards of 60 years; the deaths of infants showed a decline, while those of elderly persons exceeded the number in the preceding week. Nine inquest cases and four deaths from violence were registered; and 72, or nearly one-half, of the deaths occurred in public institutions. The causes of five, or more than 3 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

INSPECTOR-GENERAL of Hospitals and Fleets Robert Grant, C.B., has been placed on the retired list at his own request. Dated August 12th, 1902.

Fleet Surgeon Richard Dormer White has been placed on the retired list, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets.

Fleet Surgeon George Frederick Wales and Fleet Surgeon Alfred Thomas Corrie have been placed on the retired list at their own request.

The undermentioned Staff Surgeons have been advanced to the rank of Fleet Surgeon:—William Henry Norman, James McCardie Martin, D.S.O., and William Maxwell Craig.

The following appointments are notified:—Staff Surgeons: G. E. Kennedy and W. G. Axford to the *President* for course of hospital study; M. J. O'Regan to the *Calypso*; and A. S. Nance to the *Britannia* for the *Isis*. Surgeons: S. Conner to the *Britannia* for the *Isis*; H. Clift to the *President* for course of hospital study; and A. F. Fraser to the *Wildfire*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Charles E. Trimble resigns his commission. Dated August 23rd, 1902. Lieutenant-Colonel A. Asbury retires on retired pay. Dated August 27th, 1902.

The undermentioned officers of the 2nd Canadian Mounted

Rifles are granted temporary rank in the Army, whilst serving in South Africa, as follows (dated Jan. 14th, 1902):—To be Majors: Surgeon-Major J. A. Devine, Medical Officer, and Surgeon-Major H. R. Duff, Medical Officer.

The undermentioned officer of the 3rd Canadian Mounted Rifles is granted temporary rank in the Army, whilst serving in South Africa, as follows (dated May 8th, 1902):—To be Captain: Surgeon-Captain L. R. Murray, Medical Officer. The undermentioned officers of the 4th Canadian Mounted Rifles are granted temporary rank in the Army, whilst serving in South Africa, as follows (dated May 8th, 1902):—To be Major: Surgeon-Major C. E. Elliot, Medical Officer. To be Captain: Surgeon-Captain J. M. Jory, Medical Officer. The undermentioned officer of the 6th Canadian Mounted Rifles is granted temporary rank in the Army, whilst serving in South Africa, as follows (dated May 17th, 1902):—To be Captain: Surgeon-Captain D. M. Anderson, Medical Officer.

Lieutenant-Colonel A. L. Browne will proceed to Taunton for duty on Oct. 1st. Major J. R. Stuart has been transferred from the Bombay District to the Nagpur District and appointed to the medical charge of the Station Hospital, Kamptee, and Major R. J. D. Hall has been transferred from the Nagpur District. Major F. A. Shaw is to proceed to Bulford for duty. The Secretary for War has approved the appointment at the Herbert Hospital, Woolwich, and Netley Hospital, Southampton, of experts in clinical pathology. The necessary laboratory accommodation is to be provided. Major A. Dodd is to embark for Gibraltar early in October. Major R. J. Power, Major C. W. Johnston, Lieutenant A. G. Adderley, and Lieutenant T. B. Unwin have left South Africa for India.

The undermentioned Captains to be Majors (dated July 29th, 1902):—

Arthur E. Smithson, Philip H. Watson, George L. McLoughlin, D.S.O., Henry G. Parry, D.S.O., Wilfred W. O. Beveridge, Robert W. H. Jackson, Robert G. W. Mawhinny, George A. T. Bray, Bernard Forde, and John D. Ferguson, D.S.O.

Surgeon-Captain Thomas Joseph Crean, V.C., from the Imperial Light Horse, to be Captain (dated Sept. 3rd, 1902):—

The undermentioned Lieutenants to be Captains (dated July 28th, 1902):—Francis J. Palmer, Robert A. Cunningham, Vincent J. Crawford, George G. Delap, D.S.O., William A. Woodside, Harold Simson, Harold H. Norman, William R. Blackwell, Henry M. Nicholls, Arthur Chopping, Herbert F. Hart, Arthur L. A. Webb, Sidney G. Butler, Lyttleton F. F. Winslow, John J. W. Prescott, D.S.O., Percy H. Falkner, Henry E. M. Douglas, V.C., D.S.O., Ernest E. Ellery, Otto W. A. Elsner, James William Langstaff, John I. W. Morris, Arthur A. Seeds, Henry S. Anderson, Howard Ensor, D.S.O., Langford N. Lloyd, D.S.O., Leonard Wood, Thomas C. MacKenzie, Edward P. Connolly, and James Henry R. Bond.

The undermentioned gentlemen to be Lieutenants on probation (dated Sept. 1st, 1902):—

Arthur Briton Smallman, Percival Davidson, D.S.O. (from Honorary Captain), Wentworth Francis Tyndale, William Francis Ellis, John McKenzie, Arthur Herbert Hayes, Henry Joseph Crossley, Norman Dunbar Walker, William Batchelor Taylor, Reginald Storrs, George Thomas Collins, Frederick Adderley Howard Clarke, George Augustus Keppell Hart Reed, Raymond Leslie Vachell Foster, Ralph Bignell Ainsworth, Charles Augustus John Albert Balck, Gayton Warwick Smith, John Marcus Hobson Conway, Sydney Manvers Woolner Meadows, John William Smyth Seccombe, Herbert Vale Bagshawe, Charles Vivian Beresford Stanley, Dudley Sheridan Skelton, Hugh George Stiles Webb, William Walker Browne, Frederick Louis Henderson, Norman Ernest Jasper Harding, William Davenport Crawley Kelly, Richard Rutherford, and Walter Courtenay Rivers.

The undermentioned Lieutenants on probation to be seconded under the provisions of Article 349, Royal Warrant Oct. 26th, 1900 (dated Sept. 1st, 1902):—William Francis Ellis and Frederick Louis Henderson.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major E. Williams to be Surgeon-Lieutenant-Colonel.

ROYAL ARMY MEDICAL CORPS (MILITIA).

Sir Frederick Treves, Bart, K.C.V.O., C.B., Serjeant-Surgeon in Ordinary to His Majesty the King, to be Honorary Colonel. Mr. Herbert Vaughan Craster to be Lieutenant. Lieutenant J. W. Hopkins has arrived in the Eastern District for duty.

IMPERIAL YEOMANRY.

North Somerset: Dr. John Empson to be Surgeon-Lieutenant. Westmorland and Cumberland: Dr. John Livingstone to be Surgeon-Lieutenant. The resignation of Surgeon-Captain J. E. Bowser, which was announced in the *London Gazette* of Feb. 25th, 1902, is cancelled. Warwickshire: Surgeon-Captain R. Bullock to be Surgeon-Major.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Berwick-on-Tweed:—Surgeon-Captain C. L. Fraser to be Surgeon-Major. 1st Caithness; Surgeon-Lieutenant S. Davidson resigns his commission.

Rifle: 5th (Glasgow Highland) Volunteer Battalion the Highland Light Infantry: Dr. Thomas Douglas Brown to be Surgeon-Lieutenant.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Aberdeen Company: The undermentioned Captains to be Majors: J. MacK. Booth and J. S. Riddell. Leeds Company: Captain de B. Birch to be Major. London Companies: The undermentioned Captains to be Majors:—T. H. Openshaw, C.M.G., and G. S. Woodhead.

VOLUNTEER INFANTRY BRIGADE.

Gloucester and Somerset; Surgeon-Major A. W. Prichard, 1st Volunteer Battalion the Gloucestershire Regiment, to be Brigade-Surgeon-Lieutenant-Colonel whilst holding the appointment of Senior Medical Officer to the Brigade.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel Geoffrey Craythorne Hall has been promoted to be Colonel. Lieutenant-Colonel James Alexander Nelis has retired from the service. Captain Walter Hulbert Cox has been made a Companion of the Distinguished Service Order in recognition of his services during the Mahsud-Waziri operations.

The following is the list of the candidates for His Majesty's Indian Medical Service who were successful at the competitive examination held in London on August 20th, 1902, and following days:—

	Marks.		Marks.
A. T. Pridham	3162	J. L. Lunham	2522
F. P. Mackie	3097	W. J. Collinson	2502
F. P. Connor	3032	T. C. M. Young	2500
J. O'Leary	2995	H. M. H. Melhuish	2463
S. R. Christophers	2913	G. A. Jolly	2449
H. R. Dutton	2873	H. H. Kiddle	2442
W. W. Jendwine	2820	R. F. C. Talbot	2383
H. M. Brown	2817	F. C. Rogers	2377
V. B. Nesfield	2774	R. D. Saigal	2366
H. Emslie Smith	2738	G. F. Humphreys	2356
A. F. Pilkington	2738	M. Ba-Ket	2332
H. C. Brown	2645	C. A. F. Hingston	2289
C. E. Bulteel	2611	C. L. Dunn	2251
G. H. L. Whale	2584	A. K. Lauddie	2228
F. P. Vieyra	2542		
P. G. Easton	2542		

MR. CHAMBERLAIN AND THE WAR.

Mr. Chamberlain in his recent address to the members of the Birmingham Corps of the St. John Ambulance Brigade who had been on active service with the Royal Army Medical Corps in South Africa made an interesting speech, handsomely vindicating, as he has never failed to do, the good name and humane conduct of the troops engaged in the late war. This the Colonial Minister had, of course, no difficulty in doing with entire honesty. As regards the allegations that were made against the concentration camp system we may incidentally cite what Mr. Reitz is reported to have recently said. The Boers did not, Mr. Reitz stated, lay down their arms on account of the women in the camps, but on account of those who remained in the devastated country and were literally dying from hunger. In the course of his speech Mr. Chamberlain remarked that in cases of exceptional emergency and magnitude the Government must fall back upon the voluntary patriotism of the nation in time of war to supplement the necessary deficiencies in the regular service. Notwithstanding that he had subsequently to correct a misapprehension that had arisen, Mr. Chamberlain's meaning seemed to be apparent enough and correct. It would be impracticable for financial reasons to maintain permanently an army complete in all respects and of such magnitude as to meet all possible requirements. But there should be no doubt about the quality and fitness for work of the regular force that is maintained and of the system by which it could be readily brought up in case of

need to almost any required strength. With a well-organised Imperial system the means for meeting the military and medical needs of the Empire should be forthcoming, and it is for statesmen to devise a scheme by which this can be accomplished.

THE MEDICAL SERVICES.

If we may judge from the number of candidates that appeared at the late competitive examination for the Royal Army Medical Corps, we should say that Mr. Brodrick's new warrant is likely to prove attractive and to be a success. It is some time since these examinations have been really competitive, but on the present occasion we learn that such was the case, some 70 candidates having competed for 30 vacancies. We trust that the War Office authorities will spare no pains to administer their medical service in such a way as to hold out continued attractions to young medical men and to secure a thoroughly efficient medical service for the army. As regards the Royal Navy Medical Service we are not able to speak so hopefully. Perhaps the number of young medical men with a liking for the sea and life on shipboard is smaller. In any case so far as we can learn [the new Admiralty regulations have failed to attract the number of candidates desired for the Royal Navy Medical Service.

DEATHS IN THE SERVICES.

Deputy Surgeon-General William Stewart, A.M.D. (retired), at Boldre, Lymington, Hants, on August 23rd, aged 75 years. He joined the army as assistant surgeon July 29th, 1853; became surgeon July 8th, 1862; surgeon-major March 1st, 1873; deputy surgeon-general Nov. 27th, 1879; and retired July 16th, 1884. He was the author of "Clinical Researches on the Therapeutic Action of Chloride of Ammonium in the Treatment of Hepatic Disease," and he contributed articles on its use in suppurative hepatitis to THE LANCET in 1870.

Brigade-Surgeon-Lieutenant-Colonel Robert Temple Wright, I.M.S. (retired), at Bedford on August 27th, aged 59 years. He was the author of "Medical Students of the Period," and contributed articles to the Army Medical Reports and to the Indian medical periodicals.

Correspondence.

"Audi alteram partem."

GOLD MINERS' PHTHISIS.

To the Editors of THE LANCET.

SIRS,—Some weeks back a communication from Dr. T. Oliver of Newcastle *re* "Gold Miners' Phthisis" was published in THE LANCET.[1] The Public Health Department of the Transvaal is desirous of obtaining the most complete information on the subject, and if medical men when reporting a case of death from this disease (the patient having worked in this colony) would very kindly notify this department, adding, if possible, the name of the mine which employed the deceased, they would considerably assist the administration when dealing with the matter. I should be much obliged if you would insert this letter in your journal.

I am, Sirs, yours faithfully,

G. A. TURNER, Acting A.M.O.H.,
for Medical Officer of Health of the Transvaal.

Pretoria, July 29th, 1902.

THE CASE OF DR. W. T. LAW.

To the Editors of THE LANCET.

SIRS,—The fund which has been so generously raised among the medical profession in aid of the heavy expenses (nearly £700) forced upon me in defending the action of Forsythe *v.* Law has now been closed at a meeting most kindly presided over by Sir W. S. Church, Bart., and, though I hope to thank the kind donors individually, I would ask to be allowed through your columns to offer in a more public manner my very grateful acknowledgments to all who have contributed to make it so great a success. Without the help of the medical press such a result would have been unattainable, and I desire to express my deep sense of indebtedness to THE LANCET for its willing coöperation, as well as for the kindly tone of the articles upon the case that have appeared from time to time in its valuable pages which, judging from the many hundreds of letters received from contributors in all parts of the kingdom, have correctly voiced the general opinion of the profession in this matter as well as endorsed the comments of judge and jury when the latter stopped the case. Actions of this kind are so easily brought that medical men need protection more than any other class. Successful resistance tends to discourage other litigants and therefore benefits our brethren at large, and indeed the public also, for it is not to the interest of the latter that we should be fettered in using our discretion in the employment of drugs and doses in severe and intractable maladies by fear of actions for negligence. These principles have not, I think, been lost sight of by those who have so generously given, in many cases of their poverty, to swell the handsome total of the fund. The kindness and sympathy I have experienced from members of our calling of all ranks are such that I cannot sufficiently acknowledge them, but I am desirous of publicly expressing my deep obligations to those members of the profession, including men of the highest eminence, who came freely at the trial, dislocating their engagements and undergoing great inconvenience in order to attend in court for four days to testify to their knowledge of the case in my behalf. It is true that very few were able to give evidence because the jury stopped the case immediately my cross-examination was ended, but I am none the less grateful to the rest for their attendance and support. It is unfortunately the case that I was not a member of one of the medical protection societies, and as it was impossible to recover the costs awarded me I was threatened by ruinous loss. Through the generosity of the profession, however, this has been, happily for me, averted, and I shall ever feel grateful for this help in time of need. In concluding I wish to tender my special acknowledgments to the Presidents of the Royal Colleges of Physicians and Surgeons and the Master of the Society of Apothecaries for the honour done me by their kindly consenting to act as trustees of the fund, and last, but not least, to my old and kind friend, Dr. Richard Paramore, who has freely given his time, energy, and enthusiasm in my interests and whose generous efforts have been crowned with such striking success.

I am, Sirs, yours faithfully,

Weymouth-street, W., Sept. 2nd, 1902. W. T. LAW.

HAS ACUTE ANTERIOR POLIOMYELITIS BEEN UNUSUALLY PREVALENT DURING THIS SUMMER?

To the Editors of THE LANCET.

SIRS,—It is generally recognised that the prevalence of acute anterior poliomyelitis increases during the summer and reaches its maximum in the month of August. During the past six weeks I have seen no less than nine acute cases of anterior poliomyelitis and I do not remember in the past seven years during which I have had charge of the out-patient department having seen such a number in the same length of time. My cases have largely come from the north of London, but the position of the Children's Hospital, Great Ormond-street, no doubt in part accounts for that distribution. My object in writing to you is to obtain, if possible, information with regard to the observation of others on the point, and I trust that should any of your readers have observed an undue prevalence of the disease they will communicate their observations to you.

I am, Sirs, yours faithfully,

Harley-street, W., Sept. 1st, 1902. FREDERICK E. BATTEN.

THE CONTAGIOUSNESS OF PHTHISIS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 23rd, 1900, p. 1845, it was definitely established by Mr. W. Townsend Barker that to the eminent Richard Morton, M.D., belongs the merit of having pointed out and realised afterwards by clinical observation since the year 1689 the infectious and diffusible character of tuberculous consumption. Nevertheless, in some medical papers published in this country appears the error of ascribing to the French physician Villemin ("Cause et Nature de la Tuberculose," 1865 and 1866, and "Etudes sur la Tuberculose," 1868) so important a discovery.

[1] THE LANCET, June 14th, 1902, p. 1677.

For the honour of English medicine, and seeing that in our days the communicability of phthisis has become a scientific question of the first order, I beg to call attention through your columns to the subject, adding for my part that the main valuable conclusions reached by the great pathologist Morton not only were not overlooked in his time but were confirmed and corroborated by the experience of his successors whose opinions and works appeared far before Villemin, or even Kranke ("Untersuchungen und Erfahrungen im Gebiete der Anatomie," &c., 1843), who evidently preceded the former, had attempted experimental inoculations. Thus v.g., D. L. G. Klein in his book, "Interpres Clinicus, sive de morborum indole," &c. (Francofurti et Lipsiæ, 1759), art. Phthisis, p. 232, says clearly: "Contagiosa est atque circa æquinoctia exacerbatur." Van Swieten (1764), Sennert, Valsalva, Maret, Bordeu, Baumes, and others, were also partisans of the doctrine of contagion. It is known that Morgagni very rarely made post-mortem examinations of tuberculous bodies for fear of contracting the disease. Laennec and Andral, though they did not adopt entirely the views of the already mentioned authors, recommended to the healthy persons living in contact with phthisical patients several preventive measures and prohibited them from sleeping in the same room.

I am, Sirs, yours faithfully,

Zacatecas, Mexico, August 4th, 1902. JUAN BREÑA, M.D.

A QUERY IN PUBLIC HEALTH.

To the Editors of THE LANCET.

SIRS,—In this district the whole of a dwelling house, with the exception of a part which is used as a dairy and a room above this (dairy) which can be used as a bedroom, has been pulled down to below the ground floor and is now being rebuilt. Before it can be occupied after rebuilding is it necessary that a certificate under Section 6 of the Public Health Water Act, 1878, should be obtained? The staircase leading to the room above the dairy has been pulled down also. I am, Sirs, yours faithfully,

Fressingfield, August 25th, 1902. SAML. J. J. KIRBY.

*** We should say that the facts disclosed in the letter of our correspondent amount to a pulling down and rebuilding within the meaning of the section referred to, but whether the house has been "pulled down and rebuilt" is a question of fact for the magistrates should any dispute arise and we cannot positively predict the view they would take upon the evidence which would be before them.—ED. L.

THE DIAZO REACTION.

To the Editors of THE LANCET.

SIRS,—The following easy method, which I have employed for some time, might be of service to the busy practitioner. A small pinch of sulphanilic acid is shaken up with a little pure hydrochloric acid in the bottom of a test tube; the urine is then added and boiled. On dropping a piece of potass. chlorate into the liquid the characteristic colour is found, more especially near the chlorate. There may be a strong brick-like precipitate to the $KClO_3$, according to the amount of reaction. If very little HCl is used (one or two drops) the colour, &c., may be produced on adding pure HCl to the mixed urine, &c. If pure HCl, sulphanilic acid, and $KClO_3$ are mixed, and to the milky chlorine-evolving fluid ordinary urine is added, no reaction occurs even on boiling; but if to the boiled fluid a few drops of diazo urine are added a colouration appears, more marked according to quantity. If the ordinary urine + reagent fluid is neutralised by NH_3 a crystalline precipitate falls in a dark fluid, while a little of the diazo reacting urine added will at once show the characteristic colour. In a narrow test-tube boiling the diazo urine with the $KClO_3$ added as in the first case produces purple adherent flakes on the surface, as well as a dark precipitate (two substances, giving by admixture the brick colour?). If to sulphanilic acid + HCl diazo urine be added and then $KClO_3$ without heat the *brick* deposit will destroy the white colour of the $KClO_3$. The urine will be coloured in a few hours. In ordinary urine the $KClO_3$ remains white and the urine colour unaltered. The above is probably simpler than by employing the nitrite and ammonia.

I am, Sirs, yours faithfully,

J. REID, M.A., M.D., C.M. Aberd.

Tunbridge Wells, August 23rd, 1902.

THE DANGERS OF A COMMON COLD.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 16th, p. 419, you print a very interesting address by Dr. A. Latham on "Modern Treatment of Pulmonary Consumption" in which two mentions of "catching cold" are made. In one he says: "By this means the body is hardened and colds are avoided"; and in the other, "The windows of his (the patient's) room are then closed that he may not catch cold whilst dressing." In a discussion on the cause of a common cold that appeared in your columns last year Dr. H. Willoughby Gardner[1] quoted the immunity of the inmates of open-air sanatoriums as a proof that colds were due only to infection, but from these mentions of "catching cold" Dr. Latham seems to imply that the immunity in these sanatoriums is due to an avoidance of contrasts of temperature rather than to the absence of an infective germ; and this is the old popular view. It would be very interesting to know if patients before the "body is hardened" catch cold, and whether the closing of the windows during dressing is the result of experience, and whether any disobey the rule and suffer the penalty.

I am, Sirs, yours faithfully,

O. CLAYTON JONES, M.B. Oxon.

Ilfracombe, August 22nd, 1902.

LYMPH FOR REVACCINATION.

To the Editors of THE LANCET.

SIRS,—During the recent epidemic of small-pox many persons applied to me for revaccination. Being unable to obtain vaccine lymph from the Local Government Board I was obliged to get it elsewhere—viz., the Renner Establishment. In this way I incurred a bill of £3 19s. This bill in due course was presented to the guardians for payment, which they refused to entertain until the opinion of the Local Government Board had been taken. This was done by me, and the Local Government Board recommended to the guardians that the amount should be paid. At the last meeting of the guardians on Saturday, August 23rd, it was put to the vote, with the result that my bill was negatived by one vote, 13 for, 14 against, and six neutral. By some misunderstanding the clerk represented the bill to be £1 19s., instead of £3 19s. Will you give me your opinion if it has been customary during the recent epidemic for boards of guardians to pay for lymph for revaccination, and also I should feel obliged for the names of such boards, so as to be able to put this before my board. One guardian stated that if I were paid it would establish a precedent, as if my application had been the first made for lymph.

I am, Sirs, yours faithfully,

August, 1902. AN OLD SUBSCRIBER.

*** We do not remember the matter having been previously brought to our notice but in the recent epidemic of small-pox at Glasgow the municipality expended £4570 for calf-lymph in connexion with revaccination and it would seem only reasonable that the guardians should pay in accordance with the opinion of the Local Government Board.—ED. L.

[1] THE LANCET, Dec. 14th, 1901, p. 1697.

VACCINATION GRANT.—Mr. William Millar, public vaccinator of the Fourth (Welton) District of the Sculcoates Union, has been awarded a grant for successful vaccination for the second time in succession.

LITERARY INTELLIGENCE.—"Rich and Poor in the New Testament: a Study of the Primitive Christian Doctrine of Earthly Possessions," is the title of a book by Dr. Orello Gone published by Messrs. A. and C. Black on Sept. 2nd. In it the writer endeavours to interpret the New Testament teachers historically and grammatically, and to find what there may be in the spirit of their teachings that is applicable to modern social conditions. He deems it no great loss if in this process the letter of their words is not in all cases found to be available. It is believed that the chapter on "Conditions and Teachings before Christ," setting forth the humanity of the Old Testament, will be found to furnish an instructive introduction to the central theme of the book.—A new edition of Mr. Sydney Stephenson's "Ophthalmic Nursing" will shortly be issued by the Scientific Press.

COÖPERATORS AND THE HOUSING QUESTION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

DURING the week preceding the meeting of the British Medical Association at Manchester, the Fifth International Congress of Coöperators also assembled in that town. Though it does not come within the province of this journal to deal with the coöperative movement in its general sense, there are in the details of application many points that have a practical bearing on the preservation of public health. If coöperators, in so far as they are producers, importers, and distributers of food, can take measures to prevent adulteration they will render good service in maintaining the health of those with whom they deal. That this is no unimportant consideration is best set forth by the following figures. During the last year the British and Scottish Wholesale Coöperative Union supplied to 1,793,770 members through the agencies of 1462 distributive retail societies, goods amounting in value to £52,761,175. As the greater part of these goods consisted of groceries, eggs, meat, bacon, and other eatables it will at once be recognised that this has a distinct bearing on the health of the purchasers. Further, as the members have no interest in cheating themselves by adulterating the goods which they supply to themselves, there is in this organisation a good guarantee against the injurious effects that result from unscrupulous trading. But however important such considerations may be, this phase of the question was not brought forward at the congress which has just been held. Indeed, on the present occasion, the delegates dealt at length with two questions that are of the greatest interest to others than coöperators.

Papers were read and discussions were held on the housing question and on the increasing necessity of preventing congestion in the large towns by getting the people back to the land. These are matters that concern the entire community from the social, moral, economical, and health points of view. The question was whether and how far the existing coöperative societies could help to solve these intricate problems. Outside the ranks of the coöperators themselves it is not generally known that these organisations have already done a great deal in this direction. Unfortunately there is so much improvement needed that the figures submitted, though large in themselves, only meet a very small part of what is required. A circular was sent out to the various coöperative societies asking if they had carried out any operations in regard to house-building. Answers were received from 333 societies but it is thought that many other societies had successful house-building departments though they had failed to supply the details. From such information as was available—and it dates back to the year 1900—it appeared that 224 out of the 333 societies had employed some of their capital to build or purchase houses for their members. In all, 4247 dwelling-houses had been built and were owned by these coöperative societies; 3709 other houses were built and sold by the societies; and 16,082 houses had been built by members of the coöperative societies on advances made by the societies. In all no less than 24,038 houses had been built by, or with the help of, the coöperative societies. This represented in cash £917,397 expended by societies on the houses which they owned, £827,823 on the houses which they had sold to their members, and £3,402 306 advanced to members so as to enable them to build their own houses. Altogether, 224 coöperative societies have spent £5,147,526 in helping to house their members, and by counting an average of five inhabitants for each house it may be said that they have provided habitations for a population of 120,340 persons.

Though the above is only an incomplete record it nevertheless amply suffices to show that the coöperative movement can be, and actually is, of help in dealing with the housing problem. At the same time it may as well be at once admitted that so far it is only the easiest phase of the difficulty that has been dealt with. It is true that the greater part of the owners or occupiers of these houses belong to the working classes, but within that class they certainly constitute an *élite*—an aristocracy of labour. As the retail co-operative societies have now in many instances accumulated more capital than is needed to carry out their ordinary business the investing or lending of money for building purposes has afforded a safe and yet beneficent means of disposing of such surplus. These operations have been carried out in all parts of the country and members of the industrial class have thus obtained on easy terms improved and more sanitary dwellings. But in London the difficulties are greater than elsewhere, for the working men have to remove more frequently so as to follow their work. To meet this two societies—the Tenant Coöperators of London and the Coöperative Builders of London—had been formed. In these societies the members do not become proprietors of their houses, but owners of the value of a house. For instance, a man elects to live in a house. The society purchases the house and this outlay is generally refunded by the occupier in the course of 14 years. He then receives a document which represents the value of the house at 5 per cent. interest. If the occupier has to leave he receives 5 per cent. interest on the capital value of the house; if he remains he lives in the house rent free. But all this unfortunately applies only to men who live steady lives, meet their liabilities regularly, and who even if unaided by coöperative societies would still contrive to live in a fairly decent and healthy manner. It is satisfactory to know that their thrift and industry are rewarded and that their position has been improved, but "slum land" still remains a menace to our civilisation and to the public health. The question, however, was raised whether the coöperative societies could not employ some of their surplus funds to provide dwellings for the extreme poor. The suggestion was greeted with favour but nothing practical was proposed.

It was in the discussion on the necessity of bringing men back to the land that there seemed to be, as matters now stand, a better prospect of doing something for the poor. With the aid of coöperation agricultural operations may be made to pay, and this would at once draw off some of the poorer inhabitants from the large towns. In many small tenancies, even if the worker kept all the produce of the soil and paid neither rent nor taxes, still he would not have enough to live on in a decent manner. But if a number of such small tenancies were joined together, worked collectively with machinery and improved scientific methods, there would be enough for all. The coöperative societies are not only capable of organising such collective enterprises, but they can dispose of the produce through their stores and supply all the needs of the agriculturists from these same stores. The enormous quantity of butter, bacon, and eggs exported from Denmark to England is to a large extent the product of coöperative firms; and what the Danes have done to keep their people attached to the soil could be imitated in England. No large body of organised men better understand these questions than the coöperators. This is more especially the case with regard to the coöperators of the continent, for in Holland, Denmark, Belgium, France, Italy, and other countries there is a good deal of agricultural coöperation, and at the Manchester congress these and many other countries were represented. From so much and such widespread experience some practical suggestions should be forthcoming. What is needed is that someone with constructive ideas should gather together and assimilate the great amount of scattered information that was given in the papers read and printed. Then from what has already been successfully done in different countries he should select such portions as might be applicable to the conditions prevailing in Great Britain. This has already been attempted in Ireland, where coöperative dairy farming is a growing success. In the Fens of Lincolnshire and in Norfolk there are coöperative agricultural enterprises of some promise.

All this, however, constitutes but a few drops in the ocean and does not suffice to prevent the fatal increase of population in the large towns, with the resulting physical degeneration of the race. The medical press cannot be expected to advise the coöperators as to how they should conduct their business, but it is quite within its functions to applaud and to encourage every effort that may tend to procure healthy employment for a large section of the population. Consequently the general tendency of the debates held at the recent international congress of coöperators may be welcomed as a sign that these influential and wealthy organisations are taking some part in the attempt to provide better homes and more outdoor healthy work for the people. These efforts deserve to be watched with sympathetic interest. It is also legitimate to inquire whether the authorities have lent all the aid which can be expected where the public welfare is concerned. In this respect the President of the congress, Mr. H. W. Wolff,

made a regular indictment of the British Government in regard to the administration of the savings bank. A paper had been read by M. Omer Lepreux, director-general of the National Savings Bank of Belgium, and Mr. Wolff accentuated the facts that had been brought forward by pointing out that the Belgian Savings Bank had done more, in proportion to its capital, for the housing question than any other similar public institution. The British Government had appointed a committee to inquire into the working of the English Savings Bank, but had refused to receive such evidence as M. Lepreux might have given. On the other hand, the Italian Government had not hesitated to follow the example given in Belgium, and the Italian as well as the Belgian workmen would now be able to obtain money from the savings banks to build more healthy homes. In England, though the question had been raised in the House of Commons, the Government refused to take the matter into consideration. Yet it cannot be said that what has been done successfully abroad cannot be achieved in England, particularly as no official inquiry has been made into the matter. With the help of the Belgian Savings Bank some 20,000 houses had been built, and this was a safe investment. Though the interest paid for deposits in the British Savings Bank is only 2½ per cent. there are rumours current that it is proposed to reduce this low rate of interest. Surely before this is done some inquiry should be made in view of avoiding such a reduction by employing some of the money in the savings bank to build and to purchase houses for the poorer section of the community. From this quarter some help in solving the housing problem may be expected, particularly as there is the example of foreign countries to show how it can be done. It is difficult to explain the supineness of the British Government in this respect. The Manchester Coöperative Congress has rendered a public service by drawing attention to this subject.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Projected Campaign of Inoculation in the Punjab.—The Health of the Madras and Bengal Provinces in 1901.—Open-air Treatment for Consumptives in India.—The Famine.—The Sanitary Progress of Calcutta.—Abandonment of Lustig's Curative Plague Serum.—The Plague Returns.

THE Punjab Government has submitted a great project to the Government of India and the Secretary of State for sanction in order to grapple with the expected outbreak of plague during the coming winter. The disease has rapidly grown in intensity in this province. Commencing in 1899–1900 with two districts and one native State affected and 530 deaths, followed by the next year with seven districts and two native States affected and 6399 deaths, it had last year no less than 23 districts and nine native States attacked and over 200,000 deaths. The prospect of an alarming outbreak next season has given rise to great apprehension and there is the still further danger that the disease may spread to Rajputana, the United Provinces, and other districts not hitherto involved. Experience has taught this Government, like the others, that segregation of the sick is out of the question, that evacuation of dwellings even in villages can only be partial, and that disinfection is practically useless. It is curious to note that Major Dyson, sanitary commissioner of Bengal, also expresses himself with regard to the impotence of disinfection. He says in his recent report that "no marked effect on the progress of the disease followed it," that "disinfection cannot prevent fresh infection," of which there are always many chances, and that unlike inoculation it "does not confer personal immunity nor can it mitigate the severity of an attack." Finally, he says that he thinks inoculation "will ultimately be found to be the only satisfactory way of dealing with plague in the future." I have interpolated these remarks in this connexion to show the trend of medical treatment for this disease. In certain districts of the Punjab inoculation has already been accepted by the people and over 50,000 persons were inoculated last April. It has come to be looked upon as the only means possible against the disease and the Punjab Government now proposes to offer universal voluntary inoculation. Arrangements are to be made to perform 6,500,000 inoculations. To do this Indian Medical Service officers will be deputed from other places and special medical men will be engaged. It is interesting to note that the Government will not require the services of female operators. They have not been a success and the women of the Punjab will permit themselves to be inoculated by men. As few natives as possible will be engaged and none below the rank of assistant surgeon. Probably 37 special medical plague officers outside the Indian Medical Service will be necessary and these will be obtained if possible from England. The cost of this scheme will be considerable. The special officers will get Rs. 750 per mensem and expenses and the prophylactic and its carriage will cost about Rs. 2 lakhs. Clerks, compounders, camp equipage, and other things will bring the cost of the whole campaign to over Rs. 8 lakhs. Altogether, it is a great undertaking, but it is justified not only on the merits of the prophylactic but on the necessity of leaving nothing undone to prevent the spread of the disease to further parts and possibly overland to Europe.

Two sanitary reports—viz., for Bengal and Madras—have recently been issued and it is interesting to compare the two provinces. Bengal has a recorded birth-rate of 38·5 and Madras only 25·1, but the latter is manifestly from faulty registration. The death-rate of Bengal was 31·04, while that of Madras was only 21·3. Here again is shown the inaccuracy of registration generally in Madras. The infantile death-rate was very high in both Calcutta and Madras cities and in the Nilgiris the female infant mortality exceeded the male. I had occasion some months back to refer to the sanitary condition of Madras city and now the Commissioner finds it necessary to ascribe the increased mortality from cholera in part to the neglect of the local authorities and to point to the imperfections of the water-supply and the defective state and the inadequacy of the drainage. In Bengal cholera was of moderate degree. Orissa is famous for cholera, small-pox, dysentery, and diarrhœa, but is curiously free from fever. Behar, on the other hand, although a dry climate, reports a high death-rate from fever. I suspect a good deal of this was unrecorded plague. The useless practice of sprinkling wells with permanganate of potash for cholera still continues. In both Madras and Bengal plague claimed many more victims. In Madras the deaths rose from 895 to 3960, and in Bengal from 30,134 to 70,746. The mortality of plague cases is returned as 77 per cent. for Madras, 86 per cent. for Bengal, and 91·5 for Calcutta.

The example of England and Europe in the outdoor or open-air treatment of consumptives is not being neglected in India. In Calcutta and many other large towns consumption is very common. A home has recently been established at Hazaribagh in connexion with the Women's Friendly Society of Calcutta. At present it is only open for women and children. Hazaribagh, on the Chota-Nagpur plateau, stands 2000 feet up—the highest ground near Calcutta. The climate is dry, the heat is never exhausting as in Calcutta, and in the winter the air is distinctly bracing. The district around is said to resemble the Transvaal and Orange River colonies.

The monsoon has brought some relief to the famine districts but there are still over 400,000 persons in receipt of Government assistance. Bombay districts, Rajputana, Central India, and Baroda are at present the chief sufferers.

The annual report of the Calcutta municipality has been recently issued and shows a record of considerable progress. The constant supply of filtered water is being extended, the water itself being good and comparing favourably with that of the largest towns in Europe. The consumption is 24·22 gallons per head per day. The unfiltered water-supply for roads, privies, &c., is also being extended. The suburban drainage is at last to be dealt with in earnest and will include a surface drainage scheme. This has been greatly wanted for many years. A new vaccine depôt for the city, making Calcutta independent of Government supply for vaccine, is also arranged for. Decentralisation of the work of the Health Department has been effected to a great extent by the establishment of districts. Extensive changes in the *bustees* of the city have also been effected, nearly 100 being taken up for improvement. A large area of ground has been purchased for a Christian cemetery outside the town, a new *dhobikhana* is in course of construction, special food inspectors have been appointed, and several plots of ground have been acquired as open spaces.

After a long controversy the further manufacture of Lustig's curative plague serum is abandoned. It has never been shown even by its strongest advocates to be of much

value and the Commissioner now refers to "the very uncertain advantages of the serum as a means of treatment." He further says: "There has been and is available in the market at a reasonable price a serum known as Roux's serum which for the treatment of plague cases is not less efficacious than the one recently produced at Parel."

The plague returns show that the epidemic is still slumbering. For the week ending July 26th the total deaths throughout India were 1459. This is an increase of 359 over the previous week, but is less than the corresponding week last year. Bombay accounts for 1049 deaths, Madras 82, Bengal 16, United Provinces 6, Punjab 88, and Hyderabad 215. The importance of these figures lies in the fact that with the usual minimum attained at this season of the year the disease still lingers in these affected areas—it does not disappear—and, as has been experienced before, it breaks out with increased virulence the next season.

August 1st.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Queen's Hospital.

SOME important changes in the staff of this hospital are about to take place. There are three surgeons and three assistant surgeons. Mr. F. Marsh has resigned his position as surgeon, for which post there are already several candidates. The claims of Mr. J. T. J. Morrison, who has been on the assistant staff for 16 years, are considered as very strong, while for the junior post there are at least four candidates of great merit in the field.

Little Bromwich Hospital.

This is one of the infectious hospitals under the control of the health committee of the City Council and serves an exceedingly valuable and useful purpose. At the last meeting of the City Council the recommendation of the health committee to enlarge the hospital at a cost of £18,000 was adopted. The chairman remarked that the original plan contemplated 10 pavilions. Four have already been erected and opposite these there were three temporary blocks for the reception of scarlet fever patients. It is now proposed to complete the scheme by erecting three other blocks, an isolation ward, and a nurses' pavilion. In case of an epidemic of small-pox it is possible that all the pavilions might be occupied; all but one are now occupied by scarlet fever cases. The committee has previously used them for the treatment of typhoid fever cases, the result being an ample justification, since the mortality of that disease has been 13 per cent. as against 24 per cent. outside the institution. The authorities of the General Hospital having placed many typhoid fever cases at the disposal of the health committee the good understanding existing between the two committees has greatly facilitated the duties of each. Some arrangement is desirable also for the treatment of diphtheria cases, and it is to be hoped that suitable provision will be made to meet this requirement. The subject of the treatment of infectious diseases in large centres of population at the present day is an important and at times an urgent one.

Hospital Difficulties.

The annual meeting of those interested in the West Bromwich District Hospital was held on August 13th. The chairman, Mr. G. F. Chance, reviewing the report, considered that on the whole they had reason to think that the year had been a successful one, but their income had diminished and there had been a decrease in the annual subscriptions. Regret was expressed that there had been so little response to the appeal for financial help. Criticism was also levelled at the Hospital Sunday collections which exhibited a steady diminution—for instance, from £822 in 1898 to £507 for the present year. The religious bodies of the community will do well to keep this plain statement of facts in mind. Another difficulty has arisen from a technical point of view. Some months ago a generous inhabitant offered to defray the cost of a dental department. The board of management decided that one should be opened, the cost being about £100 a year; they also appointed a dentist to fill the post. Now dissatisfaction has been expressed that this new department has been arranged without the governors first being consulted; the action is declared to be illegal, as no money, it is said, can be spent without first consulting the governors and obtaining their consent. The matter was decided at a meeting preceding the annual meeting of the governors and not reported to them; this is therefore the ground upon which some objectors base their belief that further action should be taken to test the validity of the transaction. It is well that voluntary managers, however laudable their intentions may be, should keep themselves within the actual bounds of strict business knowledge.

Sept. 1st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Food for Babes.

WHAT can be done to bring some slight knowledge of what is suitable food for infants home to large numbers of our poorer women? At St. Helens it was stated at an inquest held on August 20th that a child 11 weeks old had been fed on boiled bread, while a piece of meat and a piece of cinder were found in the stomach. The father had given the child a small piece of ham and the mother had given cinder tea. The verdict was "Death from convulsions," probably caused by irritation set up in the stomach by undigested and unsuitable food. An inquest was held recently on a child 14 months old whose parents lived at West Gorton. The mother began to give the child bread-and-milk when she was three weeks old. At six months potatoes were added to the diet. In this case the mother was a hopeless drunkard and the father not much better, so that the child was dirty and neglected, "squalor pervaded the whole place, and there was no clothing, it all being in pawn." The father had come into some money recently, so that it was not a case of poverty. The child died from pneumonia accelerated by diarrhœa, and was the fifth they had lost. These parents, samples of many more, have most likely gone through their "standards" and have shared in the educational advantages which the nation has enjoyed since 1870. And with what benefit so far as the national health is concerned? For years the feeding of infants has engaged the attention of the medical officer of health of Manchester and a pamphlet of instructions has been widely distributed, while the Manchester and Salford Sanitary Association has tried to spread some knowledge as to the care and feeding of infants for the last 50 years. Yet such cases as those cited above are of constant occurrence. The question as to the proper feeding of children was brought up at the meeting of the Heaton Norris district council on August 21st and the distribution of pamphlets on the subject was proposed, but the building, sanitary, and carriage committee reported against such a course. It can be imagined that this conclusion would come from the building and the carriage sections of this curious combination. The gentleman who had proposed the issue of pamphlets or leaflets was not satisfied with this decision. He compared the Heaton Moor East ward, where the annual death-rate among children under 12 months old was about 75 per 1000, with that of Heaton Mersey, where it was 190 per 1000, and he thought that the committee ought to consider the matter as there must be some reason for this serious difference. One member said that "there was no need of bills there. They would not be read and it would be a waste of money." The chairman said that it would cost very little, and he would like a return of the number of adults and children in each little house. He had had complaints of overcrowding, which no doubt increased the death-rate. Now, such proceedings as these are taking place all over the country. The death-rate among children is discussed, returns are asked for, and that is generally the end of the matter for the time being, the death-rate among the infants going on as usual.

Manchester Infirmary.

At a meeting of the Royal Infirmary Board held on August 25th the chairman, Sir Forbes Adam, stated that one member of the board had sent in his resignation and another member would like to resign but left the matter in his hands "pending any action which the board, as a board, might take." As many of the 25 members were away the question was postponed and he announced that no meeting of the trustees would be called by the board before some date in October. It is advisable that no hasty action should be taken, for, as Sir Forbes Adam said, another board should be ready to take their place if they resigned, as the business of the infirmary, the convalescent home, and the Royal Lunatic Asylum

needed constant attention and the sub-committees appointed by the board must be ready to step into the places of those of the present board.

Blind Aid Society.

The Manchester and Salford Blind Aid Society recently gave two parties of the destitute blind in the district two entertainments, one on a Wednesday and the other on a Saturday. The first party numbered about 270 and included many of the poorest blind people in the two boroughs, including some from the Salford Workhouse, Hope Hospital, and Henshaw's Blind Asylum. On the Saturday the blind and their guides together were about 230, among whom were the blind inmates from the Manchester Workhouse. Both picnics were held at Claremont, the residence of the Misses Heywood, whose name is one honoured in Manchester. There is something pathetic in the enjoyment of these poor folks in scenes and amid surroundings unseen and, as we should think, but dimly realised. Yet there is no doubt of the pleasure they derive from such a change from the monotony of their lives. They feel the pure air and the fresh breeze and are gladdened, even in such a summer as we have been having, by the warmth of the sun. On the Wednesday they listened to the Salford Workhouse Boys' Band in the grounds of Claremont and then, headed by the band, they marched to a commodious public hall where they had tea. After tea the Bishop of Guildford gave a short address, and they returned to Claremont, listened to some more music, and at about 7 P.M. the feeblest were sent home in carriages and the others in charge of their guides. A similar programme was fulfilled for the second party on the Saturday and in better weather. The band from Sir William Mather's works kindly played for their entertainment and tea this time was served under the trees. Many of the blind themselves gave songs and recitations and the Bishop of Guildford again addressed them. It need not be said that they had a substantial tea which they enjoyed heartily, for many of them were accustomed too often to somewhat short rations. Many of the subscribers to the society were present and waited on the blind people at their tea on the two days. This society "is helping in the most practical manner a class which, though always so much in need of help, has not hitherto been adequately provided for by our local charities."

Sept. 2nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool School of Tropical Medicine: Departure of the Eighth Expedition for West Africa.

THE eighth expedition of the School of Tropical Medicine, consisting of Dr. J. E. Dutton and Dr. J. Todd, sailed from Liverpool on board the mail steamer *Bonny* on August 12th. They are proceeding to Bathurst, the Gambia territory, and French Senegal. They will be engaged on important medical research work, especially in connexion with the disease known as trypanosomiasis. They will be absent from this country for about six months. The researches made by previous expeditions will be of great assistance to the present one, which will continue investigations from the points reached by them. At the same time Dr. Dutton and Dr. Todd will make inquiries and investigations as to the general health and sanitation of the districts which they will visit. They will go further into the interior than did previous expeditions and also further into the bush. The French authorities have kindly placed quarters at the disposal of the expedition in French Senegal and have promised to give all the assistance in their power. Lord Lansdowne has instructed the expedition to call on the British consul-general at Dakar who will introduce the members to the French authorities. The French Government was invited to attach a scientific member to the expedition, but as it had arranged to send to French West African possessions a special staff of its own for the purpose of studying the different tropical diseases there it was unable to do so. M. Doumergue, Minister for the Colonies, however, added that his staff will be delighted, if occasion offers, to associate itself with the members of the Liverpool School of Tropical Medicine.

Small-pox and Scarlet Fever in Liverpool: Increasing Number of Cases.

During the week ending August 23rd there were 42 cases of small-pox in the corporation hospitals, 14 cases having been reported during the week, as against three cases in the previous week. Scarlet fever cases had also increased from 541 to 567. There were six cases of typhus fever, 56 of typhoid fever, and 50 of diphtheria in the hospitals. The deaths from zymotic diseases during the week numbered 49.

The University for Liverpool.

An intimation has been received that the Lords of the Privy Council will be prepared, early in November, to hold an inquiry and to hear counsel for or against the grant of a charter incorporating a University for Liverpool, as prayed for in the petitions of University College, Liverpool, and of the committee appointed at a meeting of Liverpool citizens

Bequests to Liverpool Hospitals.

By the terms of the will of the late Mr. John Frederick Egner of Oakhill Park, Liverpool, who died on May 20th last, the Royal Infirmary and the Infirmary for Children participate in legacies of £500 each.

Death of Mr. Thomas Frederic Grimsdale, M.R.C.S. Eng., L.R.C.P. Edin.

Mr. Thomas F. Grimsdale died at Hoylake on August 29th, in his eightieth year. Mr. Grimsdale retired from active practice in Liverpool about 10 years ago owing to failing health. He was born at Uxbridge in Middlesex and moved to Liverpool in 1845. He was formerly house surgeon at the Liverpool Workhouse hospital. He subsequently commenced practice in Liverpool which was principally confined to midwifery and diseases of women. He held the office of lecturer in midwifery and diseases of women at the old Royal Infirmary School of Medicine. He soon developed a large and lucrative practice. He was one of the pioneers in the department of gynæcology and was held in high esteem by the late Sir T. Spencer Wells. He was consulting surgeon to the Hospital for Women in Shaw-street and also of the Ladies' Charity and Lying-in Hospital. He was appointed to the commission of the peace for the city of Liverpool in 1885. He leaves a widow and a large family. His eldest son, Dr. T. B. Grimsdale, is the honorary gynæcologist to the Liverpool Royal Infirmary.

The Proposed New Asylum for Lancashire: Discussion at the Lancashire Asylums Board.

The ever-present question of the want of accommodation for pauper lunatics in the Lancashire asylums again engaged the attention of the Lancashire Asylums Board at its meeting held at Preston on August 28th. Alderman Jenkins, the chairman of the additional accommodation committee, claimed the indulgence of the board for another month to allow the committee to report. He expected it would in the course of a few days come to some arrangement with regard to a site, but it would be detrimental to the board's interests to disclose matters prematurely. Mr. Roberts (Liverpool) said the question of having a separate asylum for Liverpool and district was being seriously considered, and if this was decided upon he did not think that an extra asylum would be required at the present time. Mr. Turner (Liverpool) endorsed Mr. Roberts's remarks. The chairman disagreed with the representatives of Liverpool and pointed out that anybody who had seen the statement as to the enormous increase in lunacy could not deny that additional accommodation was required. If Liverpool built an asylum it would take five or six years to accomplish and in the meantime the need for additional accommodation would be as great as ever. In the matter of the want of accommodation for dangerous lunatics it was the general opinion of the board that the evil arose from the fact that during past years they had been obliged to take in a number of chronic cases for which the asylums were not built. These cases had filled the asylums to the exclusion of acute ones. Another cause of the crush in the asylums was the number of persons admitted through drunkenness who in a few months were discharged cured. Dr. J. M. Rhodes said that another point was the necessity of amending the lunacy laws respecting grants for pauper lunatics. The condition of affairs was serious, and it was highly desirable that a petition should be sent to Parliament supported by the Lancashire Members to bring pressure on the Government to secure financial relief to the county. To go on building asylum after asylum at a cost of half a million of pounds was a fearful strain upon a county. If the Government would make an increased grant to enable boards of guardians to retain suitable chronic cases in the workhouses it would place the asylums in a position to deal with cases of emergency as they arose.

Proposed Sanatorium for Lancashire: Coronation Commemoration Scheme for the Treatment of Phthisis.

The question of providing a sanatorium for the treatment of cases of phthisis arising in the administrative county of Lancaster came before the meeting of the Lancashire County Council held at Preston on August 8th. Sir John Hibbert moved the adoption of the report of the Special "Coronation Committee" appointed to consider the best method of appropriating the sum of £10,000 out of the county fund for the permanent celebration of the King's Coronation. Out of six suggestions the committee had unanimously decided to recommend that the whole of the £10,000 should be devoted to the establishment of an institution for the treatment of phthisis arising in the county. Sir John Hibbert alluded to the recent report of the medical officer of health (Mr. E. Sergeant), referring to the 2032 deaths caused by tuberculosis during the year 1901. The sanatorium would be to some extent self-supporting. A committee was formed to consider how the scheme could be best carried out.

Infectious Hospital Accommodation at St. Helens.

The St. Helens health committee have considered plans for increasing the infectious hospital accommodation at Peasley Cross by building a new pavilion and an addition to the administrative block. The plans were approved, but the committee decided to inspect the sanatorium before accepting the proposal of the sub-committee, which included also the erection of a discharging block.

Sept. 2nd.

WALES AND WESTERN COUNTIES NOTES

(FROM OUR OWN CORRESPONDENTS.)

Notification of Pulmonary Tuberculosis in Cardiff.

A SCHEME of voluntary notification of cases of pulmonary tuberculosis has now been adopted in Cardiff and a payment of 2*s.* 6*d.* or 1*s.* will be made to medical practitioners for each certificate received. In his last quarterly report the medical officer of health (Dr. Edward Walford) details some of the steps which are taken by the health department upon the receipt of these certificates. The dwelling of the patient is visited either by the medical officer of health or by one of the district sanitary inspectors and verbal instructions are given, together with a printed circular dealing with the precautions which should be taken against the further spread of the disease. Insanitary conditions, such as overcrowding, want of cleanliness, defective drains, &c., are dealt with in the ordinary way as nuisances. When a death from pulmonary tuberculosis occurs, or when a patient removes to another dwelling, a post-card is sent to the landlord or occupier offering disinfection at the cost of the corporation. In those cases where the diagnosis is doubtful or where it is otherwise desirable a bacteriological examination of the patient's sputum is made free of charge at the Cardiff and County Public Health Laboratory. During the second quarter of this year 90 such examinations were made.

The Medical Officer of Health of the Rhondda Urban District.

The Rhondda urban district council has decided to appoint its medical officer of health (Dr. J. D. Jenkins) permanently instead of re-electing him annually as hitherto. The terms of his appointment will thus correspond with those of a Poor-law medical officer, and he can only be dismissed from office with the consent of the Local Government Board. Although there may be some differences of opinion as to the desirability of giving to all medical officers of health fixity of tenure there can be no doubt as to the wisdom of appointing permanently those who devote their whole time to their official duties, and the Rhondda council has in this respect shown itself to be very much in advance of other large towns in Glamorganshire and Monmouthshire.

Milk-supply of Newport.

There appear to be still some milk dealers who are under the impression that, however poor their milk may be, so long as it is not diluted with water they may sell it with impunity. A Newport farmer holding this belief received a rude shock on August 29th, when the borough magistrates fined him for selling milk which contained only 2·52 per cent. of milk fat, or a deficiency of 16 per cent. on the standard. The milk was admittedly from an old cow, but the magistrates contended that milk must not only be undiluted but must be of good quality. During 1901 11 milk dealers were convicted in Newport for selling adulterated milk. Six were fined £2 each, two £1 1*s.* each, two £1 each, and one 7*s.* 6*d.* In one instance no less than 14 per cent. of water had been added to the milk examined, so that if the milkman had been selling water to his customers at the price of milk for any considerable time he could well afford to pay the small fine imposed. The medical officer of health of Newport (Dr. J. Howard-Jones) in his last annual report very properly points out that in the interests of the community, particularly of the sick and of infants who are to a great extent dependent upon milk for their nourishment, it is desirable to exercise a strict supervision over the quality of the milk sold in a town.

Women Inspectors of the Local Government Board.

The Bristol board of guardians is not disposed to agree with the guardians of the Chorlton union as to the necessity for appointing women inspectors of the Local Government Board. The Chorlton board has addressed a communication to the Local Government Board urging the appointment of these inspectors for the purpose of visiting girls and young children placed out by the guardians and has asked the Bristol board to give the recommendation its support with the result indicated above. The members of the Chorlton board are apparently not aware that there are already two such inspectors, one of whom was appointed 18 years ago and whose duties are very closely allied to those suggested. The reports of these two ladies, Miss Mason and Miss Chapman, are usually printed in full in the annual report of the Local Government Board and are always of the greatest interest to those connected with the Poor-law service.

Chippenham Cottage Hospital.

Although the Chippenham Cottage Hospital was established as recently as the year 1899 it has already been found that the eight beds available are insufficient for the needs of the district, and at a meeting held on August 21st it was decided to enlarge the hospital building at a cost of £600.

Frome Victoria Hospital.

The trustees of the late Rev. Michael Seymour Edgell of Swanley, Kent, have allocated about £1000 to the committee of the Frome Victoria Hospital. Mr. Edgell left his residuary estate to be divided between 11 persons and institutions, one of the latter to be a hospital in England to be selected by his trustees. The present hospital was opened last year and was erected to commemorate the Diamond Jubilee of Queen Victoria.

Clevedon and Walton Dispensary.

The thirty-eighth annual report of this institution, which has just been issued, shows that during the past 12 months 673 patients had been attended. The financial statement was satisfactory. The committee records with much regret the death of Dr. S. Skinner, after 30 years' service on the honorary medical staff.

Sept. 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Richmond District Lunatic Asylum.

AT the monthly meeting of the joint committee of management of the Richmond District Lunatic Asylum held recently a report was received from a special committee appointed to consider the question of the medical staff. The committee recommended that it could not at present advise any increase in the number of the permanent medical staff. In connexion with the resignation of Dr. D. F. Rambaut it made the following recommendations:—

That Mr. O'Conor Donelan remain as at present at Portrane as deputy resident medical superintendent; that Mr. Cullinan remain in his present position as second medical officer, that Dr. Fleury be advanced to the position of third medical assistant officer; and that Mr. Redington be advanced to the position of fourth assistant medical officer and, moreover, be appointed to the position hitherto held by Dr. Rambaut.

The Diseases Notification Act.

The authorities in Dublin have at last determined to put in force the Act for the Compulsory Notification of Infectious Diseases. On August 22nd at the Southern police-court a fine of three guineas with two guineas costs was imposed in the case of a dairyman who neglected to notify that his children were suffering from scarlet fever in July.

Lurgan Urban Sanitary District.

The report of the medical superintendent officer of health of the Lurgan Urban Sanitary District (Dr. Samuel Agnew) for the year 1901 has just been issued. The town of Lurgan (the fourth town in Ulster) has been, as regards health, in a satisfactory condition during the year. 334 births and 217 deaths were registered, which constitute a birth-rate of 28·20 and a death-rate of 18·6 per 1000. The death-rate is 3·5 below the average of the previous 10 years and the birth-rate 5·0 lower. The zymotic death-rate was 1·4 per 1000. The notification of infectious disease has been a great success, and when the suitable disinfecting-chamber is ready it will be an enormous help to the authorities in the union. During the months of August and September there was an outbreak of dysentery—due, Dr. Agnew thinks, to the insanitary state of the property upon which it originated. Of the total number of deaths (217) registered 30 were due to pulmonary tuberculosis, or double the number of those who died from all the recognised infectious diseases combined. Dr. Agnew, in addition to all the other well-known measures to prevent pulmonary tuberculosis, urges the improving of the conditions under which the people, especially the working people, live. Healthy houses, properly ventilated, with modern sanitary arrangements, are most necessary to render the people better able to withstand the attacks of the tubercle bacilli. This report, which is an interesting one, shows that the public health of Lurgan is well looked after by Dr. Agnew.

The British Association.

Preparations for the visit of the British Association to Belfast are proceeding rapidly. The first meeting will be on Sept. 10th, when Professor Dewar, the President, will give his opening address.

Queen's College, Belfast: The President's Report for 1901–1902.

The report of the President of Queen's College, Belfast, for 1901–1902, has just been issued. Reference is made to the very regretted resignation of Professor Purser, who, in addition to his duties as lecturer on mathematics, was for many years registrar of the college. Mr. A. C. Dixon, senior wrangler of 1886, has been appointed his successor. Two other blanks have been left in the professorships through the resignation by Professor W. H. Thompson and Dr. R. O. Cunningham of the chairs of physiology and natural history respectively. So far their successors have not been appointed. Through the munificence of Sir James Musgrave, Bart., a chair of pathology has been provided (to which Dr. J. L. Smith has been appointed), and it is expected that the new physical laboratories (the gift of the Right Hon. W. J. Pirrie) will soon be erected, and a new organ has been promised by Mrs. W. C. Mitchell. Reference is also made to the honours conferred on members of the teaching staff and to the distinctions gained by students at the Royal University examinations. A short reference is made to the meetings in Belfast of the University Education (Ireland) Commission, the report of the evidence of which the public in Belfast are every day expecting to see.

Health of Belfast.

At a meeting of the city corporation of Belfast, held on Sept. 1st, it was reported that the death-rate of the city kept low (16·9 per 1000 from all causes), much lower than in the corresponding period of the previous year. During the period between July 20th and August 16th, 195 cases of zymotic disease have been notified (105 of typhoid fever, 35 of simple continued fever, 22 of erysipelas, 13 of diphtheria, nine of scarlet fever, seven of puerperal fever, three of small-pox, and one of membranous croup). A very extraordinary discussion took place as to the notification of infectious diseases. It would appear that the medical superintendent officer of health (Dr. Henry Whitaker) was instructed by the public health committee to look into the question of the notification of a number of typhoid fever cases in No. 2 hospital district during the week ended August 2nd, his instructions being to see the patients and to ascertain from them the nature of the diseases they were labouring under. As a result he reported (after his personal inquiries) that in the case of 17 of them the patients were suffering from measles, bronchitis, pneumonia, alcoholic delirium, gastric fever, cold, or some malady other than typhoid fever. A copy of this report was ordered to be sent to Dr John Barron, the medical practitioner who notified the cases, who in his reply points out that it was due to him that the medical officer of health should have met him in consultation. He said that the medical officer of health seemed to have received his information from the patients themselves or from their relatives who had no special knowledge in diagnosing disease. The fact that some of the patients were certified to have been suffering from bronchitis, measles, &c., did not prove (Dr. Barron thought) that they were not suffering from typhoid fever also, as is frequently the case. His custom was to report a case at once, knowing the danger of typhoid fever spreading in epidemic form. He said that if in the future a question should arise as to the diagnosis of disease contained in his notifications he would be happy to accompany the superintendent officer of health and to afford him any information he wished concerning the case, but he protested against his going behind his back, a course at once unsatisfactory and unprofessional. After a long discussion it was decided to refer back to the public health committee, to make a finding thereon for submission to the council, the report of No. 2 hospital district with the reply of Dr. John Barron.

Death of Mr. William Park Blair, L.R.C.P. Edin., L.F.P.S. Glasg.

I regret to announce the death of Mr. Blair, which occurred on August 31st, at his residence, Ballynure, co. Antrim, after a very short illness. The deceased was the sixth son of the late Dr. Crawford Blair and succeeded his father as medical officer of Ballynure dispensary district. He received his early education in Scotland under his uncle, the Rev. J. Blair of Lockerbie, and subsequently studied at Glasgow and Edinburgh. He had an excellent practice and was greatly respected by his patients. He was interred on Sept. 2nd in Ballynure burying-ground, a large concourse of friends and patients by their presence testifying to their respect for him.

Lady Hermione Blackwood as a Nurse.

During the last month Lady Hermione Blackwood, daughter of the late Marquis of Dufferin and Ava, has been acting as locum-tenent for the nurse of the Bangor District Nursing Society. She discharges all the duties required and prefers to be known as Nurse Blackwood. Lady Hermione received her training at the London Hospital.

County Cork Branch of the Irish Medical Association.

At a meeting of the council of the County Cork branch of the Irish Medical Association, held on August 30th at 74, South Mall, Cork, it was decided, for the guidance of candidates for Poor law medical appointments in the county and city of Cork, to call their attention through the press to the following recommendations adopted by the Irish Medical Association in reference to these appointments and to impress upon them the advisability in their own interests of abiding by the decision of the council of the association:—

1. We recommend after full consideration that £200 per annum be fixed as the minimum salary for any dispensary appointment, and £120 per annum for any workhouse appointment, unless held jointly, when £300 should be the amount for both, and we suggest that these amounts be decided upon as reasonable.
2. That all medical salaries should be subject to a quinquennial increment, either based on the Civil Service scale or at a fixed percentage rate.
3. A yearly holiday of one month as a right, with well-defined rules as regards the appointment and payment of a substitute.
4. Superannuation on Civil Service scale as a right.

Sept. 2nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Museum of the Assistance Publique.

M. MOURIER, director of the Assistance Publique, to whose sudden death I refer in my next paragraph, had intended to start a museum in connexion with the Assistance. If M. Mourier's idea is carried out the proposition passed some 20 years ago by the municipal council will be realised. M Mourier had intended to take for the purpose of housing his museum two or three rooms in the new buildings of the Assistance on the Boulevard de l'Hôpital. The museum will include sundry objects of art, sundry historical objects, and a number of interesting manuscripts which up to now have been scattered throughout the various hospitals and which certainly ought to be preserved. Prominent among the objects to be exhibited are Fouquier-Tinville's

desk at which he used to work and an instrument-case belonging to Dupuytren; the instruments have elaborately carved ivory handles and are thus regular nests of microbes. From the Hôtel Dieu come two magnificent porcelain vases given by Napoleon I. to the hospital, a bust in hammered iron, and a small Renaissance coffer. Finally, there is a register of abjurations in which are inscribed the names of all Protestants who before they could be treated in the hospital had to abjure their Protestantism. There is also a remarkable collection of medicine-jars and the like of the seventeenth century. From the Charité Hospital come three very fine antiphonaries, and among the pictures—of which there are a good many—is a portrait of the Chancellor D'Aligre and another of the Comtesse de Lariboisière. Some curious documents are also preserved, among them being the *acte d'abandon* of the foundling Jean Lerond, afterwards known as D'Alembert, the great mathematician.

The late M. Mourier.

M. Mourier, the Director of the Assistance Publique, died very suddenly at the age of 44 years. He was *Chef de Cabinet* to M. Cazot in 1881 and to M. Ferrouillat in 1889, both of whom were Ministers of Justice. In 1896 he was made a member of the Conseil de Surveillance of the Assistance Publique, and at the death of M. Napias he was asked to take his post which after some hesitation he accepted. Having a large private fortune he refused to receive the salary of 15,000 francs. M. Mourier made up for his want of medical knowledge by a wonderful talent for administration, and the two ideas he had at heart were, first, the reform of the hospital staffs—that is to say, the substitution of female nurses for male and the separation of the non-medical staff into two well-defined classes—namely, the proper hospital staff who were simply to look after the nursing of the patients and the general staff who were to look after feeding, cleaning, commissariat, and the like. The second project which he had in mind was the rebuilding of all the old hospitals, and to carry out this latter work he wanted to enlist the aid of competent medical men and architects so that the hospital should be built by people having a complete knowledge of hygiene and hospital organisation. His early death has unfortunately occurred before these ideas could be carried out, but it is to be hoped that they will not disappear altogether on this account.

A Judicial Error.

A pharmaceutical chemist, named Danval, was condemned some 20 years ago by the Court of Assizes for poisoning his wife. His sentence was 20 years' penal servitude. His friends, however, were convinced of his innocence and by no means agreed with the report of Dr. Bergeron, the expert in forensic medicine, upon which Danval was mainly condemned; and this opinion was by no means weakened when it became apparent that Dr. Bergeron had for some time given evidence that he was suffering from cerebral weakness. A committee was formed to demand the revision of the sentence, and on the committee were many pharmacists and medical men, among whom were Professor Cornil, a member of the Senate, and Dr. Galippe. After an agitation carried out for a long time, the committee obtained from the President of the Republic a pardon for Danval, and the Court of Cassation re-examined the evidence and decided that Danval was innocent. Danval accordingly left New Caledonia and has just returned to Paris, where he received a great reception at the station from members of his committee and from many students in pharmacy. As the unfortunate man has no money Professor Cornil and Dr. Galippe are trying to get him some employment at the hospitals.

Sept. 2nd.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Delay of a Telegram to a Physician in a Confinement Case.

THE Supreme Court of Nebraska has affirmed, on a commissioner's opinion, in Western Union Telegraph Company *v.* Church, a judgment for $960 damages against the company for a failure promptly to deliver a telegram addressed to a physician saying, "Come to L. C. Church's at once. L. C. Church." The message was delivered to the company for transmission at about 6 P.M. and was delivered at about 9 P.M. of the same day. It had been previously arranged with the physician to attend a confinement case in that family and he started immediately upon the receipt of the telegram but did not arrive until after the birth of the child, a "foot presentation," during which the child died. In the commissioner's opinion it was clear that the telegram itself, addressed to a physician—one known to be such by the agent of the telegraph company at the place of delivery—was sufficient to apprise it of the necessity of prompt delivery. It could not be supposed that a message of the character of the one in question should specifically set forth the actual conditions calling for the physician's presence, the person who was sick, or the nature of the disease, and it was not necessary that this should be done in order to apprise the company of the need promptly to deliver the message. There was no doubt that the labour during confinement was prolonged on account of the failure of the physician to attend and the party suing was entitled to substantial rather than nominal damages. Nor was the verdict excessive. That great pain and agony ordinarily accompany childbirth, even in cases where sympathetic and competent persons are in attendance to render all assistance lying within human power, is a matter of common information. It may be said that this pain and agony are such that no person could negligently be the occasion of its prolongation without being culpable.

Uniform of the Medical Department of the Army.

A board of officers appointed to revise the uniform of the army has changed the insignia of the Army Medical Department and the Hospital Corps from the cross to the caduceus. This device is not only very sightly, but is also particularly appropriate for the medical service of the army, the rod signifying power, the serpents healing, and the wings diligence and celerity. The matter of uniformity also was considered by the board, since in almost every foreign army the caduceus is used as the insignia of the Army Medical Department. Still another reason for the change from the insignia of the cross to the caduceus is the fact that the former device is used by various relief organisations not under military control, which fact caused much confusion in the popular mind as to the identity of the Army Medical Department and the Hospital Corps during the late war with Spain. The board further proposes to change the colour of the Army Medical Department from green to magenta; this change is likewise in conformity with the customs of foreign nations, superficial examination proving that dark red, magenta, or maroon is the distinctive colour not only of the Medical Department of our own Navy, but also of 13 of the most important armies of the world, including those of England, Germany, France, Austria, and Russia. The proposed changes will add much to the attractiveness of the uniforms of our medical corps; the combination of blue and magenta is very rich and sightly, while green and blue were quite the reverse. This same board is making other changes in the uniform as a whole, particularly with regard to the uniform of the soldier for field service, these changes being conducive to greater comfort, hygienic advantage, and practical utility under the conditions of modern warfare.

Regulation of the Sale of Virus.

The Commissioners of the District of Columbia propose to regulate by law the sale of viruses, serums, toxins, and analogous products. The Bill provides that the surgeon-general of the army, the surgeon-general of the navy, the supervising surgeon-general of the marine hospital service, the chief of the Bureau of Animal Industry, and the health officer of the District of Columbia shall constitute a board with authority, subject to the approval of the Secretary of the Treasury, to promulgate from time to time such rules and regulations as may be necessary in the judgment of that board to govern the issue, suspension, and revocation of licences for the maintenance of establishments for the propagation and preparation of viruses, serums, toxins, and antitoxins, and analogous products applicable to the prevention and cure of the diseases of man, intended for sale in that district, or to be sent, carried, or brought from any state, territory, or the District of Columbia into any other state, territory, or the District of Columbia or from the United States into any foreign country, or from any foreign country into the United States. All licences for the maintenance of establishments for the propagation and preparation in any foreign country of any virus, serum, toxin, antitoxin, or product aforesaid for sale, barter, or exchange in the United States shall be issued upon condition that the licentiates will permit the inspection of the establishments where such articles are propagated or prepared in accordance with this law.

August 20th.

Obituary.

ALFRED COLEMAN, F.R.C.S. ENG., L.R.C.P. LOND., L.D.S.

WE regret to announce the death, from apoplexy, of Mr. Alfred Coleman on August 26th. Mr. Coleman was born on Dec. 30th, 1828, at Wandsworth, his father being of a Quaker family. He was educated at St. Bartholomew's Hospital and became a Member of the Royal College of Surgeons of England and a Licentiate in Dental Surgery in 1860. In 1866 he obtained the diploma of Licentiate of the Royal College of Physicians of London and two years subsequently was admitted a Fellow of the Royal College of Surgeons. He devoted his professional life to the practice of dental surgery and was ever keenly interested in all that appertained to its progress, both scientifically and socially. His name appears in the first list of members of the Odontological Society of Great Britain. His contributions to the Transactions of the society were numerous and valuable, the more important being "The Nature of Dental Caries," "Anæsthesia considered especially in Reference to Dental Surgery," "Cystic Tumours," and "Forms of Irregularity of the Teeth and their Treatment." He became President of the society in 1877 and on his retirement from practice was made an honorary member. He was the author of "A Manual of Dental Surgery and Pathology," and in addition contributed articles to THE LANCET, *Medical Times and Gazette*, *British Medical Journal*, &c. Mr. Coleman was for many years dental surgeon to St. Bartholomew's Hospital and Lecturer on Dental Surgery in the medical school. He was also President of the Abernethian Society. For several years he held the post of Lecturer of Dental Surgery to the Dental Hospital of London and was also an Examiner in Dental Surgery for the Royal College of Surgeons of England. He took a keen interest in anæsthesia and was one of the first dental surgeons in this country to employ nitrous oxide extensively in practice. He devised a mouth-opener which was the "father" of the modern "Mason" gag, and with Mr. Clover he experimented with methods for prolonging anæsthesia in dental operations, and the present method of prolonging nitrous oxide anæsthesia by the nose-piece has been evolved from his original ideas. Mr. Coleman commenced practice in Finsbury-square and subsequently entered into partnership with Mr. Samuel Cartwright at Old Burlington-street. At the expiration of the partnership he practised in Savile-row and was associated in practice with Mr. F. Ewbank and Mr. J. Ackery. Owing to failing health he retired to Streatham, where he still carried on a small practice, but this even proved too much for his health and in 1884 he emigrated with his family to New Zealand, where he remained for six years. While in New Zealand he took especial interest in municipal affairs and was appointed surgeon to the New Zealand Defence Forces. After his return to England in 1890 his old hospital attracted him once more and he took a great interest in its administration, becoming a governor and subsequently almoner to the hospital.

WILLIAM HENRY HAYWARD, M.R.C.S. ENG., L.S.A.

MR. W. H. HAYWARD died on August 6th from heart disease in Manchester, where he had latterly practised. His medical education was received at Queen's College, Birmingham, during which early period of his career he displayed much diligence and ability, taking a good position in the various classes and coming out first prizeman in clinical medicine and clinical surgery. He was admitted M.R.C.S. Eng. in 1856 and subsequently took the additional qualification of L.S.A. Among his first appointments he held the positions of house surgeon at Queen's Hospital and prosector of morbid anatomy. For many years he practised at Oldbury, of which place he was the first medical officer of health, his tenure of the appointment continuing for 12 years. Mr. Hayward took a great interest in geology and wrote many papers on the subject, one of them, published in 1864, related to the discovery of remains of the *Elephas primigenius* at Oldbury. A man of artistic, literary, and musical tastes, he was a most genial companion, and his death is much regretted by all who had the pleasure of knowing him. At the time of his death Mr. Hayward was in his sixty-eighth year; he was a widower and has left a large family.

Medical News.

UNITED KINGDOM POLICE SURGEONS' ASSOCIATION.—The annual meeting of the United Kingdom Police Surgeons' Association was held at Manchester on July 30th. There was a good attendance of members, including Dr. H. W. Oulton (chief police surgeon of Dublin and Vice-President of the association) in the chair, Mr. J. Chronnell (Hindley), Dr. J. F. Craig (Birmingham), Mr. R. J. Dearden (Manchester), Mr. H. Nelson Hardy (London), Surgeon-Major G. Harrison (Chester), Mr. F. W. Lowndes (Liverpool), Mr. J. T. J. Morrison (Birmingham), Surgeon-Major W. M. Roocroft (Wigan), and Mr. T. Wolverson (Wolverhampton), and one visitor, Mr. A. N. Davies (Liverpool). Apologies for non-attendance were received from Mr J. Paul Bush, C.M.G. (Bristol), Dr. H. Barnes (Carlisle), Mr. W. J. Heslop (Manchester), and Dr. L. Maybury (Portsmouth). The minutes of the previous annual meeting were read, confirmed, and signed. In its annual report the council drew attention to the continued efforts being made by this association in conjunction with the British Medical Association to obtain a more adequate scale of fees for medical witnesses in criminal cases. Early in the present year, as a result of the exertions of Mr. W. F. Lawrence, M.P., and the interest taken by other members of the House of Commons, the Home Secretary appointed a departmental committee with Sir John Dorington, M.P., as chairman, to report upon this long-standing grievance of the medical profession. Mr. F. W. Lowndes and Mr. Nelson Hardy in giving evidence before this committee showed that the expenses incurred by medical men in attending assizes frequently exceeded the fees payable under the existing code which was passed as far back as 1858; they also pointed out the increasing reluctance of the profession, for the foregoing reason, to examine cases of alleged criminal assault, and they mentioned the instances which had occurred at Hindley in Lancashire and Bungay in Suffolk where the medical practitioners had declined to examine such cases. The opinion expressed to the committee was that for each case the minimum fee should be one guinea per diem in magistrates' courts and two guineas per diem in assize courts and quarter sessions. The matters dealt with in the report of the council were discussed by Mr. Dearden, Mr. Nelson Hardy, Mr. Chronnell, Mr. Roocroft, Mr. Lowndes, Dr. Oulton, and Mr. Morrison; and it was unanimously resolved that the report should be received, adopted, and entered on the minutes.—It was proposed by Mr. Morrison, seconded by Mr. Lowndes, and resolved unanimously, "That in the opinion of this association the medical practitioners of Bungay, having previously notified their intention to the police on stated grounds, were justified in declining to examine the case of alleged indecent assault referred to in the summer assizes held at Bury St. Edmunds; and this association is further of opinion that the subsequent animadversions of the Home Secretary, Mr. Ritchie, were uncalled for, in view of the fact that whereas the authorities of the Home Office have acknowledged the hardship inflicted on medical witnesses in criminal courts by the existing scale of fees they have nevertheless repeatedly refused to increase the rate of remuneration."—The treasurer reported that the accounts had been duly audited, a favourable balance of £36 5*s.* 9*d.* being shown.—The report of the revision sub-committee, which had been approved by the council, was adopted. The alterations affect Rules 4, 7, and 11, and enact that the number of vice-presidents shall be two or more; that four members of council shall form a quorum of that body; that a general meeting of the association shall be held during the annual meeting of the British Medical Association; and that the retiring president shall be eligible for re-election.—The following officers were elected for 1902–1903:—President: Mr. J. Paul Bush, C.M.G. (Bristol). Vice-Presidents: Sir Henry D. Littlejohn (Edinburgh) and Dr. H. W. Oulton (Dublin). Treasurer: Mr. H. Nelson Hardy (London). Honorary Secretaries: Mr. F. W. Lowndes (Liverpool) and Mr. J. T. J. Morrison (Birmingham). Council: Dr. H. Barnes (Carlisle), Dr. J. F. Craig (Birmingham), Mr. W. J. Heslop (Manchester), Mr. E. K. Houchin (London), Dr. L. Maybury (Portsmouth), Dr. D. McDonnell (Belfast), Mr. W. Powell (Cheltenham), Mr. H. W. Roberts (London), Mr. W. M. Roocroft (Wigan), Dr. C. Templeman (Dundee), Dr. T. Wallace (Cardiff), and Mr. W. Washbourn (Gloucester). Representatives on Joint Committee for Medical Witnesses

Fees: Mr. Nelson Hardy, Mr. Houchin, and Mr. Roberts.—Votes of thanks were accorded to Dr. Oulton for presiding, and to Mr. Heslop for his kind hospitality to the association.

CENTENARIANS.—It is announced that Mrs. Rebecca Binks of Doncaster has celebrated the 103rd anniversary of her birthday. She was born at Epworth, the birthplace of John Wesley, on August 28th, 1799.—At Leyland, on August 28th, Mary Mahon died at the residence of her daughter in Hough-lane at the age of 103 years. The deceased, who formerly lived at Bolton, had been bedridden for nearly three years. She could remember the reign of George III.

THE DEVELOPMENT OF CHELTENHAM AS A SPA.—For many years past Cheltenham has made spasmodic efforts with a view to the resuscitation of its natural mineral waters, but with little success. While the town council has been dallying with the question, Mr. H. Cronheim, who is temporarily residing in the town, has recognised that Cheltenham has a valuable property in its mineral waters, and at the meeting of the town council a proposal was submitted by him. Being impressed with the value of the waters he has approached several wealthy friends with a view to form a syndicate for the purpose of developing the waters, and he applied for an option for six months (for which he would pay 50 guineas) to acquire for a period of 50 years the whole of the Cheltenham mineral waters in the possession of the corporation in consideration of an annual payment and upon terms to be agreed upon. He also asked if the corporation would be prepared to let to him on lease the Winter Gardens for the same period. The council discussed the question at some length, and it was intimated that probably £200,000 to £300,000 would be spent on the enterprise. The council, by resolution, expressed its willingness to comply with the application provisionally upon terms being arranged.

CONGRESS ON THE TREATMENT OF THE INSANE.—The International Congress for the Improvement of the Condition of the Insane was opened at Antwerp on Sept. 1st, under the presidency of M. van den Heuvel, Belgian Minister of Justice.

VICTORIA COTTAGE HOSPITAL, ABERGAVENNY.—The ceremony of declaring this hospital open will be performed by Lord Tredegar on Oct. 6th.

NEW COTTAGE HOSPITAL AT ST. ANDREWS.—A new cottage hospital which was opened on August 27th at St. Andrews contains a ward forming a memorial to the late Lieutenant F. G. Tait, son of the late Mr. Peter Guthrie Tait, professor of natural philosophy in Edinburgh University. A tablet in marble bears the following inscription written by Mr. Andrew Lang:—

In memory of Frederick Guthrie Tait, Lieutenant 2nd Battalion Royal Highlanders (Black Watch), wounded at Magersfontein, killed in action at Koodoosberg, February 7, 1900, aged 30 years. The wing of the hospital was erected by subscriptions from 145 golf clubs and a wide circle of friends, by whom he was beloved for his manly and honourable character and admired for his pre-eminent skill in the game.

AT the last meeting of the Southend-on-Sea town council the medical officer of health, Dr. J. T. C. Nash, was voted an honorarium of 125 guineas in recognition of his services in connexion with small-pox.

ROCHDALE INFIRMARY.—On August 29th, at a meeting of the Rochdale Infirmary committee, a letter was read from Mr. James Ogden, of Kilnerdeyne Terrace, offering £1000 as a birthday gift on the occasion of the donor's seventieth birthday.

BOOKS, ETC., RECEIVED.

ALCAN, FÉLIX, 108, Boulevard Saint-Germain, Paris.

La Prostitution réglementée et Les Pouvoirs Publics dans les Principaux États des Deux-Mondes. Par Louis Fiaux, Ancien Membre du Conseil Municipal de Paris. Price not stated.

ARROWSMITH, J. W., Printer, Quay-street, Bristol. WHITAKER AND CO., 2, White Hart-street, Paternoster-square, London.

University College, Bristol. Calendar for the Session 1902-1903. Price 1s.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

Suggested Standards of Purity for Foods and Drugs. By C. G. Moor, M.A., F.I.C., F.C.S. Price 7s. 6d. net.

CHURCH MISSIONARY HOUSE, Salisbury-square, E.C.

Preaching and Healing. The Report of the C.M.S. Medical Mission Auxiliary for 1901-02. Price not stated.

FISCHER, GUSTAV, Jena.

Bacteriologische Diagnostik. Für Aerzte, Tierärzte, und Botaniker. Von Teisi Matzuschita, Dr. med. et phil. Price, paper, M. 15; cloth, M. 17.

Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Herausgegeben von Dr. J. Widmark, Professor der Augenheilkunde. Viertes Heft. Price M. 4.

Handbuch der Anatomie des Menschen. Herausgegeben von Professor Dr. Karl von Bardeleben in Jena. (8. Lieferung: Harn und Geschlechtsorgane. Erster Teil. Von Prof. Dr. J. Disse, in Marburg.) (9. Lieferung: Darmsystem. 1. Abteilung. Atmungsorgane. Von Friedrich Merkel in Göttingen.) Price, to subscribers, M. 6; to non-subscribers, M. 7.50.

GREEN, WILLIAM, AND SONS, Edinburgh.

A Pocket Guide to Anæsthetics. For the Student and General Practitioner. By Thomas D. Luke, M.B., F.R.C.S. Edin., Anæsthetist to the Deaconess Hospital, to the Dental Hospital, and Instructor in Anæsthetics to the University Surgical Classes, Royal Infirmary, Edinburgh. Price not stated.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE, 93, Boulevard Saint-Germain, Paris.

Le Professeur Koch et le Péril de la Tuberculose Bovine. Par Paul Garnault, Docteur en Médecine, Docteur ès Sciences Naturelles, Ex-chef des Travaux de Zoologie et Anatomie Comparée à la Faculté des Sciences de Bordeaux, Membre de la Société d'Anthropologie de Paris. Price 12 francs.

J. P. LIPPINCOTT COMPANY, Philadelphia.

The Artificial Feeding of Infants. Including a critical Review of the recent Literature of the Subject. By Charles F. Judson, M.D., Physician to the Medical Dispensary of the Children's Hospital, and J. Claxton Gittings, M.D., Assistant Physician to the Medical Dispensary of the Children's Hospital. Price 10s. 6d.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

Text-book of Electro-chemistry. By Svante Arrhenius, Professor at the University of Stockholm. Translated by John McCrae, Ph.D. Price 9s. 6d. net.

MACMILLAN AND CO., London.

Reports from the Cancer Research Laboratories: The Middlesex Hospital. Vol. i. Edited for the Cancer Investigation Committee by Alexander G. R. Foulerton, F.R.C.S., Director of the Cancer Research Laboratories; Member of the Comité für Krebsforschung. Price 8s. 6d. net.

PITMAN, SIR I. AND SONS, LIMITED, 1, Amen-corner, E.C., and PULMAN, G., AND SONS, LIMITED, Thayer-street, Manchester-square, W.

Phonographic Outlines of Medical Terms, with an Appendix. Issued by the Society of Medical Phonographers. Third edition; 1902. Price 2s.

REBMAN, LIMITED, 129, Shaftesbury-avenue, Cambridge-circus, W.C.

The Treatment of Tabetic Ataxia by Means of Systematic Exercise. By Dr. H. S. Frenkel, Medical Superintendent of the Sanatorium "Freihof" in Heiden (Switzerland). Only authorised English Edition, translated and edited by L. Freyberger, M.D. Vienna, M.R.C.P. Lond., M.R.C.S. Eng. Price 12s. 6d. net.

WALTER SCOTT PUBLISHING COMPANY, LIMITED, Paternoster-square, E.C.

The Wife and Mother. A Book of First Principles for the Guidance of Young Married Women. By Ralph Vincent, M.D., late Senior Resident Medical Officer, Queen Charlotte's Lying-in Hospital, London. Price 5s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ADAMS, J. E., L.R.C.P., M.R.C.S., has been appointed a Clinical Assistant in the Special Department for Diseases of the Throat in St. Thomas's Hospital.

BERNSTEIN, JULIUS M., L.R.C.P., M.R.C.S. Eng., has been appointed House Physician at the Manchester Royal Infirmary.

BOWDLER, A. PENRHYN, M.A., M.B., B.C. Camb., L.R.C.P., M.R.C.S., has been appointed House Physician to the Victoria Hospital for Children, Chelsea.

BRADFORD, A. B., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

BROWNE, ANDREW LANG, M.D., M.Ch. R.U.I., Lieutenant-Colonel, R.A.M.C. (retired), has been appointed in Charge of Troops at Taunton from Oct. 1st next.

CHILD, F. J., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Junior Obstetric House Physician to St. Thomas's Hospital.

CLARKSON, F., M.B., B.S. Durh., has been appointed Senior Ophthalmic House Surgeon to St. Thomas's Hospital.

COATES, J., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

CROMPTON, K. E., B.A., M.B., B.C. Cantab., has been appointed House Physician to St. Thomas's Hospital (extension).

CROW, JOHN, M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Largs District of Ayrshire.

D'EWART, JOHN, M.R.C.S., L.R.C.P., has been appointed House Physician at the Manchester Royal Infirmary.

ELLERTON, H. BYAM, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior Assistant Medical Officer to the Metropolitan Asylum for Imbeciles, Leavesden, Herts.

EXLEY, JOHN, M.R.C.S. Eng., has been appointed Medical Officer to H.M.'s Prison at Leeds, vice Mr. B. S. A. Moynihan.

HAMILTON, A. D., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed House Physician to St. Thomas's Hospital.

HEDLEY, J.P., M.A., B.C. Cantab., has been appofnted Assistant House Surgeon to St. Thomas's Hospital.

HENDERSON, T. B., M.A., M.B., B.Ch. Oxon., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

HILDESHEIM, O., B.A., M.B., B.Ch. Oxon., has been appointed a Clinical Assistant in the Electrical Department at St. Thomas's Hospital.

HILL, W., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

HUDSON, A. C., M.A., M.B., B.C. Cantab., has been appointed House Surgeon to St. Thomas's Hospital.

LAPAGE, C. P., M.B., Ch.B. Vict., has been appointed House Surgeon at the Manchester Royal Infirmary.

LOOSELY, A. E. A., B.A. Oxon., L.R.C.P., M.R.C.S., has been appointed Junior Ophthalmic House Surgeon to St. Thomas's Hospital.

MARSHALL, FRANK E., M.B., Ch.B., L.S.A., has been appointed an Administrator of Anæsthetics at the Royal Southern Hospital, Liverpool.

MAVROGORDATO, A., L.R.C.P., M.R.C.S., has been appointed Assistant House Physician to St. Thomas's Hospital.

MERRICK, FERDINAND R. H., M.D. Dubl., has been appointed Medical Officer of Health of the Rural District of Basingstoke.

MOORE, W. B. A., L.R.C.S., L.R.C.P. Irel., has been appointed Resident Medical Officer, Mercer's Hospital, Dublin.

PEARCE, F. H., B.A., L.R.C.P., M.R.C.S., has been appointed a Clinical Assistant in the Special Department for Diseases of the Ear in St. Thomas's Hospital.

PEARSON, F. J., M.R.C.S., L.R.C.P. Lond., has been appointed Special Medical Officer for Plague Duty in India.

PRITCHARD, A. W., Surgeon-Major (1st V.B. Gloucestershire Regiment), has been appointed Brigade-Surgeon-Lieutenant-Colonel of the Gloucester and Somerset Volunteer Infantry Brigade.

PULLIN, THOMAS HENRY STOCKER, M.D. St. Andrews, F.R.C.S. Edin., M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health for Sidmouth (Devon) for three years.

ROBERTS, R. E., M.B., B.Sc. Lond., has been appointed Senior Obstetric House Physician to St. Thomas's Hospital.

ROE, J. W., B.A., M.B., B.C. Cantab., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

SCOTT, S. G., M.A., M.B., B.Ch. Oxon., has been appointed a Clinical Assistant in the Special Department for Diseases of the Throat in St. Thomas's Hospital.

SEDGWICK, C. H., M.A., M.B., B.C. Cantab., has been appointed House Physician to St. Thomas's Hospital.

SINCLAIR, H. W., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed House Physician to St. Thomas's Hospital (extension).

SMITH, WARD, M.B., Ch.B. Edin., F.R.C.S. Eng., has been appointed Surgeon to Sir Peter Salt's Hospital, Shipley.

SPURRIER, H., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

TYLECOTE, J. H. L., M.B., Ch.B. Vict., has been appointed Chief Medical Officer of the Gold Coast Government Railways.

VALENTINE, W. R., M.D., B.Ch. Dubl., has been appointed Honorary Surgeon to the Bideford and District Dispensary and Infirmary.

WALKER, T., M.R.C.S., L.R.C.P., has been appointed House Surgeon at the Manchester Royal Infirmary.

WATERHOUSE, A. T., M.A., M.B., B.Ch. Oxon., L.R.C.P., M.R.C.S., has been appointed a Clinical Assistaat in the Special Department for Diseases of the Skin in St. Thomas's Hospital.

WHEEN, C., B.A. Oxon., L.R.C.P., M.R.C.S., has been appointed a Clinical Assistant in the Special Department for Diseases of the Skin in St. Thomas's Hospital.

WILKINS, ARTHUR G., M.B., Ch.B., has been appointed Resident Medical Officer to St. Mary's Hospital for Women and Children, Manchester.

YARRED, W. H. HARWOOD, B.Sc. Lond., L.R.C.P., M.R.C.S., has been appointed Assistant House Physician to St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and apartments.

BRISTOL GENERAL HOSPITAL.—Assistant Casualty House Surgeon. Salary £70, with board, residence, &c.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120 rising to £140 per annum, with rooms, board, coal, and light.

CANCER HOSPITAL, London.—Pathologist. Salary £250 per annum.

CANCER RESEARCH FUND, Examination Hall, Victoria Embankment, London, W.C.—General Superintendent.

COUNTY OF LONDON EPILEPTIC COLONY, Horton, Epsom, Surrey.—Medical Superintendent. Salary £800 per annum, with unfurnished house.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

EAST SUSSEX NEW LUNATIC ASYLUM.—Medical Superintendent. Salary £900 a year, with unfurnished house, &c.

HITCHIN (NEAR) THREE COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, washing, and attendance.

HOSPITAL FOR WOMEN, Soho-square.—Clinical Assistantships.

KIRKMICHAEL, Banffshire.—Medical Officer. Salary £115, exclusive of medicines.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board, apartments, and washing.

LIVERPOOL, CITY OF, INFECTIOUS DISEASES HOSPITALS.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL INFIRMARY FOR CHILDREN, Myrtle-street.—Assistant House Surgeon for six months. Salary £25, with board and lodging.

LONDON COUNTY ASYLUM, Horton, near Epsom, Surrey.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board and residence.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Honorary Assistant Physician.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician (salary at rate of £40 per annum), House Surgeon (salary at rate of £40 per annum), Assistant House Physician (salary at rate of £20 per annum), and Assistant House Surgeon (salary at rate of £20 per annum), all tenable for six months.

MIDDLESBOROUGH, NORTH RIDING INFIRMARY.—House Surgeon, unmarried.

MORPETH DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with rooms and attendance.

NATIONAL DENTAL HOSPITAL, Great Portland-street, W.—Medical Superintendent. Honorarium £120 per annum.

NEW HOSPITAL FOR WOMEN.—Resident Medical Officer (female) for the Maternity Department; also Clinical Assistants (female).

NORTHAMPTON COUNTY BOROUGH.—Medical Officer of Health. Salary £500 per annum.

NORTHAMPTON GENERAL INFIRMARY.—House Surgeon, unmarried. Salary £125 per annum, with apartments, board, attendance, and washing.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—Resident Medical Officer. Salary £120 per annum, with board, residence, and washing.

PAISLEY, ROYAL ALEXANDRA INFIRMARY, Barbour-park.—Assistant Surgeon. Salary £30 per annum, with bed and board.

READING ROYAL BERKSHIRE HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, lodging, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with apartments, board, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon, unmarried. Salary £80 per annum.

ROXBURGH DISTRICT ASYLUM, Melrose, N.B.—Assistant Medical Officer. Salary £120 per annum, with board, rooms, and washing.

ST MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta-street, Covent-garden, W.C.—House Surgeon for six months. Salary at rate of £100 a year, with board, lodging, and washing.

SHEFFIELD, CITY OF, HOSPITALS FOR THE TREATMENT OF CASES OF INFECTIOUS DISEASE.—Second Assistant Medical Officer. Salary £150 per annum, with board, lodging, and attendance.

SHEFFIELD ROYAL HOSPITAL.—Junior Assistant House Surgeon, unmarried. Salary £50 per annum, with board and lodging.

SOUTHWARK UNION, London, Infirmary, East Dulwich-grove, S.E.—Second Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, with board and lodging.

WESTON-SUPER-MARE HOSPITAL AND DISPENSARY.—Medical Officer to the Provident Dispensary. Salary £100 per annum, with board, lodging, and washing.

WONFORD HOUSE HOSPITAL FOR THE INSANE, Exeter.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200, with board, &c.

THE Chief Inspector of Factories, Factory Department, Home Office, gives notice that vacancies as Certifying Surgeons under the Factory Act exist at Liphook, at Port William, at Halesowen, and at Bury.

Births, Marriages, and Deaths.

BIRTHS.

BYHAM.—On August 12th, at Woodlands, Sunbury-on-Thames, the wife of Wm. L. Byham, L.R.C.S., L.R.C.P., of a daughter.

ROBB SMITH.—At MacGregor Lodge, Stratford, London, on August 28th, to Dr. and Mrs. Alec Robb-Smith, a daughter.

STEPHEN.—On August 30th, the wife of Lionel Stephen, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

MARRIAGES.

POWELL—BARBER.—On Sept 3rd, at Cotham-grove Baptist Church, by the Rev. T. Campbell, assisted by the Rev. J. F. Holdsworth and the Rev. C. Pye (brother-in-law of the bridegroom), John Joseph Powell, M.D. Lond., of 2, Portland-square, Bristol, to Edith, second daughter of Mr. and Mrs. Charles Barber, Kilbirnie, Cotham-park, Bristol.

DEATHS.

GRIMSDALE.—On August 29th, at Sandycroft, Hoylake, Thomas F Grimsdale, L.R.C.P. Edin., M.R.C.S. Eng., in his 80th year.

MCFARLAND.—At the Royal Hospital, Sheffield, on August 30th, George McFarland, M.B., Ch.B. Edin., of Hawera, New Zealand.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A CORONER AND PATENT MEDICINES.

SOME strong and sensible remarks of Mr. John Troutbeck upon the dishonest statements advertising quack remedies deserve more attention than they are likely to receive. The case which came before the coroner on August 22nd was that of a child who had died from convulsions for which the mother had treated her with a patent medicine. According to the label on the bottle its contents were a "lightning cure for all kinds of coughs," cured various ailments, and destroyed the "germs and bacilli of consumption." It is little to be wondered at that the poor fall easy victims to the specious blandishments of these quack remedies. It is, perhaps, more surprising that, as Mr. Troutbeck remarked, "the Government make money out of dishonest advertising." There is little doubt that the Government stamp upon bottles of the kind in question goes far to confirm the favourable impression wrought in a poor woman's mind by the grandiloquent claims of the vendor's label. In the particular case to which we refer the coroner declared the "cure" harmless. Often such is not the case, but even if actually harmless in themselves these medicines do an infinite amount of harm by deferring or preventing the poor from seeking more trustworthy aid. How long will it be before the law recognises the unsatisfactory condition respecting the sale of poisons or of quack medicines?

A FATAL CASE OF BELLADONNA POISONING.

A PARTY of children from Portsmouth, spending a holiday in West Sussex, ate a number of berries from the plant of the belladonna, or "deadly nightshade." They were taken ill soon after, one, a boy, aged 11 years, who had eaten more freely than the others, seriously. All showed the usual symptoms—flushed face, dry throat and skin, the latter covered with a scarlatiniform rash, rapid pulse, widely dilated pupils, and a restless delirium. In the case of the boy an emetic did not perform its work for some time, and he never recovered from the effects of the poison, death ensuing a few hours later. Evidence at the inquest showed that the other children would have eaten more of the fruit but for the peculiar sweet flavour.

A HOLIDAY WITHOUT RAIN.

To the Editors of THE LANCET.

SIRS,—In offering some consolation to your readers for the badness of the summer you observe that had they gone abroad they would have fared no better. May I say that I have had a month's holiday without a drop of rain except a slight drizzle one morning? I sailed from Liverpool at the end of June and returned at the end of July, having had a fortnight in the Canary Islands. Though this was not the best time of the year for the islands it was never oppressively hot and the sea voyage was delightful. As I took the trip for the benefit of my wife's health it occurred to me that medical men would be interested in knowing that it can now be done very cheaply. Messrs. Elder, Dempster, and Co. issue a £15 ticket which covers first-class voyage to Grand Canary and back (about a week each way) and a fortnight's stay at the Hôtel Métropole at Las Palmas. The hotel is a very pleasant one on the verge of the sea.

I am, Sirs, yours faithfully,

August 28th, 1902. JAS. SYKES.

OBJECTIONABLE ADVERTISEMENTS.

A CORRESPONDENT has sent us a copy of the August issue of the *English Illustrated Magazine*, which is published by Mr. T. Fisher Unwin, and asks our opinion of certain advertisements which appear in this popular periodical. The advertisements in question include one of Mr. T. R. Allinson's "Book for Ladies," the character of which may possibly be well known to our readers; one of a book entitled "A Book for Wives," which is published by Messrs. D. Haddon and Co., surgical appliance makers of Ipswich, and which according to the advertisements contains "golden information"; and one of a book entitled "Confidential Talks with Husband and Wife," purporting to be written by an M.D. whose name does not appear on the Register, and having for its sub-title the words, "A Book of Information and Advice for the Married and Marriageable." The advertisement sets out that the last book, which is published by essrs. Oliphant, Anderson, and Ferrier, of Edinburgh, deals with such pleasant subjects as "Love's Consummation," "The Relative Amorousness of Males and Females," "The Limitation of Offspring," and "Old Age and Sexuality." We can only express our surprise that a publisher of Mr. Fisher Unwin's standing should sanction the appearance in any publication issued from his house of such advertisements.

"THE MAN IT WAS THAT DIED."

THE list of accidents from motor-cars bids fair to rival the casualty lists of a fair-sized campaign. In most cases, it is some sort of consolation to observe, recklessness and ignorance play a large part in bringing about the catastrophe. An unfortunately large proportion of accidents, however, appears to be unavoidable under the present conditions of roads and of motor-cars. Of such are the cases in which a break properly applied to a car going at no improper speed causes skidding and an accident. Perhaps in the category of unavoidable accidents may be classed the running-over of a couple of dogs fighting in the road. An accident of this nature at Rottingdean recently led to the death of a farm labourer named Moffett. The deceased was sitting on a bank beside the road and his dog was fighting with another when a motor-car, travelling only eight miles an hour, ran into the dogs, overturned, and injured Moffett's leg. He was treated at the Sussex County Hospital, when after 12 days tetanus set in and in spite of all treatment proved fatal.

A QUESTION OF FEES.

To the Editors of THE LANCET.

SIRS,—A and B are both away from their separate practices and are friends; each leaves a locum-tenent in charge—C and D—who are strangers to each other. C asks D to apply forceps in a case of labour. D tells C he will expect a fee of a guinea. Is D justified in asking such a fee? Is D justified in retaining it having first obtained consent, and who should pay? Should C pay or should his employer in case the patient does not do so?

I am, Sirs, yours faithfully,

August 28th, 1902. JUSTITIA.

**** In our opinion D was quite justified in asking a fee, but he should not retain it, for, unless some special arrangement was made, all fees received by a locum-tenent belong to the practitioner whose deputy he is. In the case of the patient not paying the fee C's employer will be legally liable, but of course the matter could be easily arranged by A and B when they return.—ED. L.

DETAILED MEDICAL ACCOUNTS.

To the Editors of THE LANCET.

SIRS,—Having had but a short experience of general practice I should like to know your opinion on the merits or otherwise of giving our patients a more or less detailed account when sending in our half-yearly or yearly bills. The usual custom of merely stating the one item of "Attendance and medicine" does not, to my mind, appear quite satisfactory. I should think the average business-like patient would prefer to have something a little more definite. Nowadays we like to know what we are paying for, and though the medical profession stands upon a different footing to all others, yet I think there might be some alteration in the matter of our accounts which would be an improvement without reducing them to the level of ordinary trade bills, which is to be avoided. Of course, there is difficulty at the outset as it does not seem desirable to me to enter every detail for which we charge, such as "Bottle of medicine, 2*s.* 6*d.*," while, if we do not do that, what is the next best course to pursue? I think we rather lay ourselves open to questioning on the part of our patients as to how such and such an account is made up, and this might be avoided if we gave some indication of the services which we have rendered. Some such plan as stating the number of attendances per month and "medicine for same" might be resorted to, or the figure due for each month without referring to the attendances, or a combination of the two. I am afraid that this would mean a considerable increase in the trouble of preparing accounts, but would not that be compensated by the satisfaction to our patients which would accrue from this more business-like procedure? One hesitates to adopt a new departure such as I have suggested without advice on the subject, and you, Sirs, are in a position to afford such advice. Would the method I have here roughly sketched—or a similar one that your readers might suggest—be derogatory to the dignity of the profession?

I am, Sirs, yours faithfully,

Sept. 2nd, 1902. LEDGER.

**** The question of detailed medical accounts is a difficult one upon which to dogmatise. Perhaps some of our readers will give us their experiences.—ED. L.

THE LAW FUND.

THE following additional subscriptions have been received by Dr. Paramore, 2, Gordon-square, W.C.:—Mr. Clement Lucas, £2 2*s.*; Dr. Ernest Alfred Edelsten, 10*s.* 6*d.*; Mr. F. R. Mallard, 10*s.* 6*d.*; Dr. Prosser James, £1 1*s.*

THE CIRCULATION OF DISEASE.

To the Editors of THE LANCET.

SIRS,—Flies, dust, milk, water, &c., are all credited with being vehicles for the spread of disease, but what is more likely to carry infection and what is more circulated than money? If an ordinary penny could speak, what a tale it might unfold? From the mouth of the old lady in an omnibus to the conductor's bag; from this to the trousers pocket of some labourer, whose wife, when he comes home, gives it to the baby to play with. Little Tootsie, as is usual with babies, sucks it, and then little Annie, just convalescent from scarlet fever, gets hold of it. By-and-by Annie goes to sleep and the penny rolls on to the floor, where it may encounter some of Uncle Tom's phthisical expectoration. Before long the penny is picked up from the floor and a jug (with the penny in it) is sent to the public-house for half a pint of ale. (Who has not heard the story of the little girl who was sent to purchase three pennyworth of treacle, and when the grocer, having filled the jug with treacle, asked her for the money she replied, "Please, sir, mother put the pennies in the jug"?) From the jug the penny is transferred to the till and is not long in coming into the possession of a child who may fall a victim to

scarlet fever germs which had come from little Annie's hands. I am sure that water in which old, greasy, thumbed £1 notes, American "greenbacks," and Indian rupee notes had been soaked would yield a host of noxious germs. Isolation hospitals and sanitary precautions render valuable service in limiting the spread of disease, but they are not enough, and I would suggest the formation of a society for the prevention of the circulation of disease whose business would be to consider all the different ways by which disease is spread. There are few persons of sense who will not agree with my opinion that at all theatres, banks, railway stations, and other places where large amounts of money are received there ought to be sterilisers into which all coins should be dropped. In a practice I once had where I was accustomed to take a quantity of cash it was my custom to put all coins into a pot of water kept boiling over a small gas stove, the coins being afterwards dried with a cloth. In Uganda, where the coinage consists of strings of cowrie shells, 900 to 1000 going to the rupee, is it any wonder that small-pox, itch, &c., are so prevalent? It is a common sight to see a native with his fortune round his neck. He may be covered with itch or have just got over small-pox, but it is all the same to him. He goes to market and buys some bananas which cost him some shells, these he hands over, with the words, "Here you are, my friend," unwittingly handing over germs of all sorts gratis.

I am, Sirs, yours faithfully,

RALPH STOKEY,
Medical Officer, Uganda Protectorate.

Mbarara, Ankole, June 12th, 1902.

THE TREATMENT OF ASTHMA.

To the Editors of THE LANCET.

SIRS,—Could you give me any information re Dr. Tucker's atomizer for asthma? I know a lady who has been for many years a great sufferer from asthma and she tells me what a great benefit she has derived from this, after stramonium, &c., given in the ordinary way has had little or no good effect. Therefore I would like to know what legitimate medicine can offer her, as I know nothing of this Dr. Tucker but would greatly like a wrinkle as to this treatment.

I am, Sirs, yours faithfully,

Sept. 2nd, 1902. RUSTICUS.

*** We know nothing of the apparatus in question.—ED. L.

THE "Y" FUND.

SURGEON-GENERAL H. S. MUIR begs thankfully to acknowledge additional donations towards the above Fund from Mrs. Hamilton Turner, Mr. A. Haldinstein, Mrs. A. Halford, Mr. R. Halford, Mrs. Julius Meyer, Mrs. Edmund Davis, "Anonymous" (from several members of one family), Lieutenant-Colonel O. H. Channer, I.M.S., and the following officers of the Royal Army Medical Corps: Lieutenant-Colonel J. C. Culling, Majors S. R. Wills, E. Eckersley, R. G. Hanley, Captain J. G. McNaught, and Lieutenant F. M. Parry. The fund now amounts to £582. As it is proposed to close it towards the end of the current month intending subscribers are requested kindly to forward their donations within the next three weeks. Should any reader of THE LANCET desire further particulars with a view to expressing *practical sympathy*, a copy of the letter giving particulars of the case will be forwarded on application to Surgeon-General Muir, 35, Kensington-gardens-terrace, Hyde Park, London, W.

A QUERY.

To the Editors of THE LANCET.

SIRS,—Does any medical man know anything of Dr. Brillon of Paris and his "cure" of masturbation? A patient suffering from the evil habit seeks reliable information before placing himself under treatment, ordinary remedies having failed.

I am, Sirs, yours faithfully,

Sept. 1st, 1902. ENQUIRER.

MEDICAL EVIDENCE AT CORONERS' INQUESTS.

To the Editors of THE LANCET.

SIRS,—I shall feel very grateful for your opinion or that of some of your numerous readers with regard to this case, involving the question of a coroner's treatment of members of the profession in the witness-box. I will not go further into the case than to say that a healthy-looking lad, aged nine years, died suddenly on Tuesday, August 26th, at 9.30 P.M., after exhibiting symptoms which left considerable doubt in my mind as to the cause of death. It seemed to me the case might be one either of cerebral lesion, such as abscess with rupture, hæmorrhage, &c., or of abdominal lesion—e.g., perforation—although pulse, temperature, and facial expression hardly warranted an expression of opinion in favour of the latter. I asked the coroner through his officer whether he wished to hold an inquiry, hinting that I thought the case much too suddenly fatal for meningitis. He sent me back a note saying that he understood I was "satisfied the cause of death was meningitis," and asking if I was "satisfied the cause was natural." Now, I was by no means satisfied as to the former statement; had it been so I should not have troubled him at all, as I had seen the boy twice the evening he died. Finally, a post-mortem examination and inquest were ordered, and it was when in the witness-box that I hold I was unfairly treated. The coroner began to ask me a great many irrelevant questions. In fact, it was more a public examination in medicine and surgery than an inquest, and he even went so far as to ask why I had not examined the eyes ophthalmoscopically. Of course, the idea of such a thing was absurd considering the boy's condition. Then he wished to know why some one else was not called in, in a way which left the impression on my mind and probably on the jury's that he attached little importance to my opinion. Had I been an unqualified assistant or mere surgery help instead of a practitioner of some 15 years' standing I could have had no less consideration at his hands. As a matter of fact there was little time for a consultation and the parents were ordinary working people with, I presume, not too much ready money at hand. Then not having my thermometer (or rather having a broken one) on my first visit I did not take the temperature, and here was a splendid opportunity. He referred to this *only* five times. Mark you, no one had ever hinted that my conduct of the case was in any way unsatisfactory. Now, Sirs, has the profession just to bear this sort of thing without redress? I must say, in common fairness to coroners generally, it is unusual in my experience, which is rather extensive, for I was for some years locum-tenent in many parts of England. Of course, this sort of thing may be repeated in my case or some one else's. Must we grin and bear it? I ought to say a duodenal ulcer was found post mortem which had perforated.

I am, Sirs, yours faithfully,

Sept. 2nd, 1902. M.B. EDIN.

THE HUMOURS OF CONSCIENTIOUS OBJECTION.

THE responsibility (if any) for the following rests with a Whitehaven contemporary. A "conscientious objector" who had been repeatedly refused an exemption certificate made a renewed application in the local court. He had in the meantime written to the Local Government Board stating the facts from his point of view and he informed the bench of the nature of the communication. "You may have a conscientious objection to vaccination," said one of the magistrates, "but we have a conscientious objection to giving you a certificate." "Yes," quickly responded the applicant, "but the law has not provided for your conscience." The magistrates were so impressed with the cogency of this argument that they granted the exemption certificate.

A DANGEROUS EXHIBITION OF IRON.

To the Editors of THE LANCET.

SIRS,—The discovery by myself of acicular particles of iron in bread leads me to suggest that metal exhibited in such a form may *steel* a march—perhaps a *dead* one—on the appendix of the genus homo.

I am, Sirs, yours faithfully,

L. GREY THOMPSON, M.D. Aberd.

Launceston, Tasmania, July 22nd, 1902.

MEDICINE AS A CAREER.

To the Editors of THE LANCET.

SIRS,—I should be extremely grateful if you will favour me with your opinion and advice in the following. I have recently bought a practice in a working-class town of about 10,000 inhabitants. Directly opposite my surgery there is a cash chemist. Now this man does a tremendous business, which consists chiefly in treating medical and surgical cases. He not only dispenses his own medicines (which he simply labels under his name, cough medicine, rheumatic medicine, &c.) but holds consultations with people—the same people—for days and weeks. In these consultations he examines people, feels the pulse, takes the temperature, and, in short, poses as doctor in every way except name. My patients have invariably gone through his hands first. The custom here seems to be to visit a doctor only as a last resource. I have had several patients suffering from ambulatory typhoid and other fevers who have been under this chemist's care for a week or a fortnight before coming to me. His surgical reputation is also well established. Only to-day a man came here suffering from tuberculous synovitis of the knee-joint. He has been under the chemist's treatment for a month, whose treatment, the man informs me, consisted of rubbing with different substances. This treatment has been so detrimental that at last the man became alarmed and changed his surgeon. I cannot help feeling that such things should not be allowed in fairness both to the public and the medical profession. There are two other medical men here, but all our practices together are not equal to this consulting chemist's. I am, Sirs, yours faithfully,

August 28th, 1902. DUBIOUS.

*** There is at present no law in this country to prevent any one, however ignorant or incompetent, from practising medicine or surgery, provided that such person does not falsely pretend to be a registered person.—ED. L.

Practitioner.—In our opinion B should have communicated with A before examining the patient.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Rhondda Leader, Nottinghamshire Free Press, Newbury Weekly News, North American Review, Rochester and Chatham Journal and Mid-Kent Advertiser, Wakefield Express, Isle of Man Examiner, Fraserburgh Advertiser, St. Pancras Gazette,*

Scottish Guardian, Guy's Hospital Gazette, St. Neot's Advertiser, Surrey Advertiser, Ayr Observer, Grantham Journal, Western Morning News, Hertfordshire Mercury, Herts Advertiser, Bournemouth Visitors' Directory, Malvern Advertiser, Beverages, Beverley Recorder, &c.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.) Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (13th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Clinique. (Medical.)

WEDNESDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. P. J. Freyer: Clinique. (Surgical.)

THURSDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Horne: Clinique. (Throat.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1902, which was completed with the issue of June 28th, and the Title-page to the Volume, were given in THE LANCET of July 5th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1902 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid and *not* to THE LANCET Offices.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 4th 1902.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 29	29·78	E.	...	116	81	57	60	65	Hazy
,, 30	29·65	N.E.	...	96	71	59	58	61	Overcast
,, 31	29·85	S.	...	90	68	60	58	61	Raining
Sept. 1	29·85	S.	0·47	100	71	60	62	64	Raining
,, 2	29·83	S.W.	0·14	97	69	56	61	64	Cloudy
,, 3	29·51	S.W.	0·06	124	74	64	65	68	Cloudy
,, 4	29·86	S.W.	...	121	70	59	60	64	Cloudy

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